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A Series
OF
500 EMERGENCY OPERATIONS FOR ABDOMINAL WOUNDS.[1]

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With a Prefatory Note

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PREFATORY NOTE.

I HAVE been invited by the surgeons responsible for this record to preface their communication with an explanatory statement of the surgical conditions in which their work was done, and a knowledge of these will, I think, be of interest. It is well known that most surgical operations at "the Front," including those on the abdomen, are performed in the casualty clearing stations, and a large number of the latter are established at suitable places behind the firing line. At two points, however, it was not possible to place so large a unit as a casualty clearing station exactly where it was required, and as a result of this smaller units were established, such as "emergency hospitals," to deal with those patients who could not easily be taken farther back. It was at the larger of these that the authors of this communication did their work, and in addition to treating a certain number of very serious wounds of the chest and other regions they were called upon to take charge of most of the cases of abdominal wounds occurring in their area. The cases here recorded all form a consecutive series.

The hospital was housed in a good, modern, steam-heated village hospice. It had already one small operating theatre and another was quickly added. The proximity of several casualty clearing stations, with equal equipment for operations, made it possible effectually to prevent overcrowding of the hospital or overworking of the staff, for, if the latter became unduly pressed, suitable cases could always be sent to the casualty clearing station, and only the worst class retained. By this arrangement also it was easy to prevent any patient being kept waiting an unduly long time, and so to give him the best chance of recovery.

I am in complete agreement with the authors in their expressions of opinion as to the cases that should *not* be operated upon, and I would specially emphasise the advisability of leaving alone almost all patients shot in the region of the solid viscera, and particularly "through and through" the liver, for I am sure that I have more often seen harm than good come of surgical interference. There are certainly some exceptions to this rule, but not many. I would also lay especial stress on the advisability of not operating when more than 36 hours have passed since the infliction of a wound in the intestine area. Out of the many hundred patients who have been operated upon I know of only three or four cases of recovery after so long a delay. On the other hand, I have seen a certain number of cases such as are alluded to in this paper where operation has done more harm than good by disturbing recently formed adhesions and early processes of repair. It can no longer be doubted that patients with perforations of the hollow viscera *can* recover if the lesion is not too large, even though such recoveries are rare, and very few in proportion to the recoveries after early operation. It must also be remembered that many missiles have been known to pass across the stomach and intestine areas without wounding these viscera, and it is therefore not to be supposed that a patient who is not operated upon has no chance of recovery. I have seen many who have recovered, and I am sure that the advice given by the authors is advice that should, with rare exceptions, be followed.

This record of 500 operations for gunshot wounds of the abdomen performed in a single hospital is, I suppose, unique, and it consequently gives to the opinions of the authors a corresponding value. All surgeons still employed in the treatment of such cases will especially appreciate the caution with which the authors draw their conclusions, and will value their advice the more.

A table will be found in this paper giving the results of our first 500 operations for abdominal war wounds, but the object of the paper is rather to summarise the results of our experience as to diagnosis and treatment of these cases than to attempt any elaborate description of them. We apologise in advance to readers engaged in similar work for many statements which will appear elementary or obvious to them but may be of use to even experienced abdominal surgeons undertaking this work for the first time.

The patients arrive direct from the Field Ambulances who label and send by special car all abdominal or doubtful abdominal cases. The time elapsing between wounding and arrival naturally varies considerably. A large number of patients have been received as early as three hours after the infliction of the wound, but the average is a good deal higher than this, and with the advance of the line and the more mobile conditions of fighting the time has tended to increase. For the benefit of those without experience of the Front it should be pointed out that the delay, which, of course, is quite unavoidable, occurs in getting the wounded men out of the battle area, only a small fraction of the time is occupied in the transfer by motor ambulance on the road, so that the difficulty of the time element is not entirely solved by simply establishing hospitals very close to the line—a mile or two either way is unimportant.

Time Element in Prognosis and Treatment.

It may be as well at this juncture to discuss the above point. Statistics are fallacious; they may show but little difference in the mortality of a series operated on four hours after wounding and another in which eight or nine hours have elapsed. The reason is that patients who were operable four hours after the wound may have become inoperable or died before eight hours have gone by, and the second series will necessarily contain cases with less severe injuries than the first.

From a careful comparison of similar cases we are quite positive that the time element is of the highest importance, and that an abdominal patient's chances diminish with every hour of delay.

The vast majority of our patients have reached us within nine or ten hours and a large percentage in half that time, but a certain number of cases arrive at much later periods, up to three or four days in the case of men who have been lying out. The treatment of such late cases must be entirely different from the early ones. It is nearly always wise to adopt an expectant attitude. If the patient is in operable condition after 48 hours it may be assumed that the visceral injury is not severe and hæmorrhage has entirely ceased, while Nature has made some effort to deal with the condition.

Every case must be judged on its own merits, but operation thus late has a very high death rate. As a working rule we should say that a man in fair condition who has been wounded more than 36 hours should always be watched, unless there is some clear indication that there is a condition which must be fatal without interference. In cases much later than this—four or five days—there is usually obvious general peritonitis, and here it is wisest simply to drain the pouch of Douglas through a small incision, an operation of a few minutes only. We have had several successful cases of this kind in which doubtless intestinal wounds had been closed by adhesions.

It is most necessary in late cases of this kind to bear in mind the fact that all unoperated cases are not fatal, that severe visceral injuries can be and are cured by natural means, and that, speaking generally, while operation under suitable conditions enormously increases the patient's chances

[1] A summary of the facts and opinions contained in this paper has been read at a meeting of the Fifth Army Medical Society in France.

of recovery, it can hardly be said that it is impossible for any patient to recover without it. We know that the mortality of large series of cases operated upon is as near as possible 50 per cent. We have no actual data as to what the mortality would be if the same cases were left without operation, but there is some reason for supposing that it would be somewhere in the region of 90 per cent. In many individuals, however, the patient's condition may make it certain that his chances of surviving operation will be represented by a number much below the average of 50 per cent., while it may be that in the same individual the nature of his wound and the probable injury present will render it likely that he would have a much better than 10 per cent. chance if left. And it is where one believes that a case is so much below the average of one class and above that of the other that the figures are reversed, that expectant treatment is adopted.

Diagnosis and Prognosis on Admission.

Two questions are continually arising when a new patient is examined. Is he fit to stand operation? Is he suffering from a true penetrating abdominal wound with injury to hollow viscus? Of course, a large number arrive in whom neither of these points is doubtful, but in perhaps half one or other question will come up, and to some of them both will apply. The determination of the answer to these questions is undoubtedly by far the most difficult problem which the surgeon has to face, and it is here, far more than in actual operating, that experience is of value.

A detail we have found most helpful is the establishment of an observation ward. This ward is on the ground floor, is furnished with beds with blankets only, and no patient remains in it long. Into it are sent all doubtful cases, and, in addition, those hopelessly moribund and those who can be pronounced off-hand to have non-penetrating wounds and who are merely waiting for transport to a clearing station. It is in connexion with the doubtful cases that this ward is so valuable. They cannot be left on stretchers, and we have found that if they are admitted to the ordinary wards and mixed with operation cases they inevitably tend to be overlooked for hours during the extreme times of stress and hard work which occur in heavy fighting. In the observation ward each bed is prominently labelled with the name of the surgeon under whom its occupant has been admitted, and the surgeons make a practice of constantly visiting this ward throughout the day, however busy. Where a number of patients collect for operation the best way to arrange the order in which they shall be taken is to leave till *last* and for further consideration the *doubtful* cases, and of those undoubtedly requiring operation to take invariably the men in best condition and the most hopeful cases *first*.

To discuss first the question. Is a given patient well enough to stand operation? The obviously moribund man—cold, pulseless, and dying—presents no difficulty, while, on the other hand, there is as a rule no doubt about the patient whose condition is good and who has been wounded four or five hours only. There is no question at all that if there is the least doubt as to whether or not there is an injury to hollow viscera, such patients should all be operated on at once. In them the actual shock of laparotomy is not a danger to life, so that if nothing is found there is no harm done, while if there is even a small visceral wound it can be closed in time to be of determining value in the issue of the case.

The difficulty lies with the patients whose condition is poor, who have been wounded for many hours, and who may present the additional problem of the uncertainty of diagnosis. The main principles which govern one's decision in these cases are as follows. If there is no doubt at all that the patient has a serious visceral injury which must be almost certainly fatal without operation—for example, a protrusion of injured intestine—he should be operated upon unless actually moribund. But he will often benefit by a delay of two hours. We have found by experience of many cases that a most marked improvement often occurs if a patient is kept in the ward, warm and at rest, for an hour or two. On the other hand, experience has also shown that a patient who shows no sign of improvement in two hours seldom recovers sufficiently to be operable in any less period than 30 or 40 hours.

Supposing, upon the other hand, that the patient's condition is bad but not inoperable, and at the same time there is doubt about the diagnosis of a severe injury to hollow viscera, the surgeon has to balance in his mind the chance the patient will have after operation with the chance that he has an injury from which he will not reasonably recover without it. We should say in such cases where the one certain fact is that operation is going to be very dangerous, give the patient the benefit of the doubt by not operating.

Diagnosis of Penetrating Abdominal Wounds.

To turn now to the second question which arises in examining a new patient—Has he a penetrating wound and is there an injury to a hollow viscus? A point may be mentioned at once which is of importance. A man may have a severe injury to a hollow viscus without penetration of the peritoneum. This is particularly the case where the missile has torn the abdominal wall and bared, but not entered, the parietal peritoneum. We have had more than one such case in which the subjacent loop of small intestine was torn almost in two.

Another preliminary point which also occurs is the question of operation for wounds of solid viscera. Owing to their occurrence in conjunction with other wounds, injuries to the solid viscera are frequently encountered and treated in the course of an operation; but supposing that it is believed that only a solid viscus is injured, is operation indicated? We consider that it is not, with the possible exception of a kidney wound in a man whose condition is good. Wounds of the liver are seldom, if ever, benefited by operation; if very severe they are fatal, and if not severe the hæmorrhage has usually ceased, and the surgeon checks by packing or suture the hæmorrhage he has created by interference. The same applies to small wounds of the spleen. It is only in an obvious spleen wound where the patient is plainly suffering from hæmorrhage more than shock that an operation is indicated with a view to splenectomy.

So that, speaking generally, the essential point in diagnosis is the injury of hollow viscera. There is, of course, a type of case which presents no difficulty—that in which there is a protrusion of intestine or an escape of intestinal contents, fluid, or gas through the wound, or where an injury to a viscus can be felt or seen through the wound. Sometimes surgical emphysema due to intestinal gas may be felt beneath the skin, while in one case gas had escaped along the cord and distended the scrotum.

With regard to cases with protrusion of viscera, the most important point, of course, is the condition of the intestine, whether injured itself and whether strangulated. In the event of its being neither the prognosis is not very bad. We have had a case in which the whole small intestine, the transverse colon, and the great omentum were prolapsed through the wound; it was covered with mud and wrapped in a khaki shirt, and had been so for eight hours; there was no strangulation or injury. The intestine was roughly cleaned and rapidly returned under anæsthetic, and the man made a good recovery. On the other hand, where there is a necessity for resection in these cases they are nearly always fatal. Projecting omentum, in itself not a serious condition, when found to occur, nearly always denotes a visceral injury. In this way it is an indication for operation.

The next type of case to be considered is the "through-and-through" wound. Here it is often possible to settle the diagnosis by a consideration of the line of direction of the wound upon anatomical grounds; but when this is done the line must be most carefully contemplated. With an entry in the flank and an exit by the umbilicus—for example, a wound which on a casual glance would seem to pass right through the peritoneal cavity—the wound may upon careful consideration be found to lie wholly in the muscles, while there are several fallacies in connexion with through wounds in the pelvis and upper abdomen.

The only advice one can give is to carefully consider the anatomy of the part. Remember especially the high position of the splenic flexure, and, lastly, if all other symptoms and signs are against a visceral wound do not depend on anatomical considerations alone.

The degree of dilatation of stomach or bladder and the position of the diaphragm at the moment of being hit are factors impossible to determine, while lastly, it should be remembered that men are not hit in the position in which they are examined—but often with the back extremely bent. Nevertheless the first and most important step in diagnosing these cases is a careful attempt to get all possible information from the position and nature of the wound. Exploration by finger and probe should be done wherever possible.

The final type of case remains in which the diagnosis has to be made from symptoms and an examination of the abdomen alone. It is, of course, a truism with everyone who has seen many of these cases that wounds in the chest alone may give all the signs of an abdominal injury, while wounds in the back and buttocks which give rise to retroperitoneal hæmatomata may set up marked abdominal rigidity and tenderness.

First as to *symptoms*. Pain is an uncertain and misleading one, especially in view of the fact that so many of these patients have had large doses of morphia. There is fairly frequently in true visceral wounds a history of intense pain a few minutes after the wound, passing off later. We have frequently noted shoulder pain in wounds of the diaphragm—an interesting referred pain which has been described before.

Vomiting is of distinct value in diagnosis. A majority of all our patients with visceral injuries had vomited before admission, and a minority only of those cases in which abdominal penetration was suspected and which subsequently proved not to be the case. Vomiting is particularly common in stomach injuries, and the absence of hæmatemesis in no way negatives such. A history of the passage of flatus since the wound is against any wound of the colon, especially the descending colon.

A last point of importance is to notice carefully the patient's appearance. A normal facial appearance is very greatly against a severe abdominal lesion, even if the pulse is bad, while an appearance of extreme shock may give a better hint of the truth than the pulse.

Abdominal Signs.

Rigidity and absence of free movement is of the utmost importance from a negative point of view. Its complete absence almost precludes a visceral injury; on the other hand, its presence may be due to a number of other causes—chest wounds, retroperitoneal hæmatoma, or injury to abdominal wall alone.

Tenderness is a far more valuable positive sign. Its undoubted presence at some little distance from the wound, and especially at the other side of the abdomen, is almost diagnostic of a visceral injury. There are, however, two other possibilities—hæmorrhage in the peritoneum alone may produce it and hæmorrhage in the tissues of the anterior abdominal wall will actually produce the most extreme tenderness. We have not found the attempt to define areas of hyperæsthesia of any value.

Percussion signs are peculiarly fallacious and valueless in these cases; we attach almost no importance to them. *Rectal examination* is seldom of any value. *The passage of a catheter* may afford valuable information where injury to the urinary tract is suspected.

The last question in regard to diagnosis is as to whether to explore or to wait in a case in which it is impossible to at once make up one's mind. The deciding factor is the patient's condition. As has been said before, if this is sufficiently bad to reduce his chances of recovery after operation to probably 1 in 10 or even 1 in 5 it is far better not to operate, since even with a perforating visceral injury his chances when left may be as good as this. On the other hand, if the patient's condition is good, so that operation presents very little risk, and the wound is so recent that possibly serious visceral injury is present, it is far better to explore; if necessary, a very small incision may be made in the middle line and a swab inserted into the pouch of Douglas, to determine the presence or absence of blood. On the whole, it is far more satisfactory to explore than to wait and see when dealing with doubtful wounds in patients recently wounded and in good condition. We have done a number of such laparotomies with negative results, and the few who have died have all had serious complicating limb or other wounds.

However, occasionally the existence of a hollow viscus wound is so exceedingly doubtful that it is unjustifiable to operate. In that case, if the patient is watched, look rather for an improvement which should take place than expect the presence of visceral wound to soon render the patient worse. Such cases frequently remain quiescent for long periods and then suddenly and rapidly take a turn for the worse. A riding pulse-rate (in the absence of an increasing temperature) is nearly always an indication to operate even if the man is quite comfortable.

Contra indications to Operation.

The only complete contra-indication that we observe (apart from the condition of the patient) is a complete spinal lesion with paralysis. With such diagnosis is almost impossible—since it will give every abdominal sign and symptom without penetration, and in addition the prognosis, if operation is done, is practically hopeless. Those who encounter abdominal wounds for the first time are warned against overlooking a spinal lesion. Every patient should be asked to move his legs.

An almost complete contra-indication is a wound of the chest definitely involving lung (with hæmoptysis or surgical emphysema). With such the mortality after operation is enormous; our only cases of recovery had solid viscera wounds from which they might have recovered if left. We are of opinion that such patients' chances are almost always better if left alone. Operation should be confined to such a rare case as where, with protruded viscera or otherwise, a hopeless abdominal condition can be actually seen, and in addition, for some reason, the patient's general condition is reasonably good.

Serious other wounds form an important complication in many cases. Where there is a limb wound which demands amputation perhaps the best chance is to do the abdominal operation first and risk the leaving of the amputation till a few days later. If both must be done together it is possible to get an additional surgeon to amputate while the abdomen is being operated on. We have not had a successful case of this kind, but in one which survived for some days the patient appeared to suffer less shock than would have been likely if the operation had been prolonged to over two hours by doing the two successively.

Operative Measures.

Anæsthesia.—Most of our cases have been given open ether with or without chloroform; atropine is usually given previously. Shipway's warm ether apparatus has been used lately with excellent results. The anæsthetic is often difficult, and experienced anæsthetists have proved their worth.

Salines.—It will be convenient to discuss now the giving of salines before, during, and after operation. The first point, confirmed again and again in this hospital, is that salines are of little use in shock and of the utmost value in hæmorrhage. Recent work on the specific gravity of the blood in these conditions has thrown some light on the cause of this phenomenon. Unfortunately in most abdominal cases both factors are present, but it is usually easy to convince oneself that the value of the saline varies with the proportion of the hæmorrhage element to the shock element. Intravenous saline has sometimes been given to bad cases in the observation ward, but has been found useless. In severe shock the effect is momentary, while in hæmorrhage there are obvious dangers in giving it until the condition has been ascertained or is about to be dealt with. Rectal saline is also of little use here, as in severe cases it is not readily absorbed, while there is always the danger of its mechanically harming the abdominal condition, unless a large intestine wound can be obviously excluded.

Saline during operation.—In cases whose condition is good or fair we have used subcutaneous saline with Lane's bag extensively; Oi. or Oii. with 1 c.c. of pituitrin, and occasionally ℥i of adrenalin solution being infused during the operation. It is only right to mention that in two cases this method has been followed by cellulitis. Both were fatal, with gas gangrene of the original wound, and it appears that there was an infection in addition at the site of the saline injection. In neither case was it the cause of death, but it shows the method has its dangers. In more severe cases with hæmorrhage we use intravenous saline; Oii. or more are given with brandy ℥ii., adrenalin solution ℥ii., and 1 c.c. of pituitrin. It is given slowly during the course of the operation, about Oss. should be given at once, and the rest withheld until towards the end.

Saline in the after-treatment.—Rectal saline by intermittent small enemata ℥v. to ℥x. (with brandy ℥ii. to Oi. to promote absorption) is given as a routine measure for some days. Intravenous saline when a patient collapses after operation is useless, unless the collapse is due to secondary hæmorrhage—which hardly ever occurs in abdominal cases.

Incisions.—The following are the chief points:—

1. Where the location of the injury is uncertain and small intestine is almost certainly concerned a long (6-inch)

middle-line incision extending above and below the umbilicus is best. It should be made to one side of, and not through, the linea alba.

2. Where the injury can be localised to one side of the abdomen and there is a likelihood of colon being affected, either a vertical incison through the rectus sheath should be used (as has been done most frequently by us) or a transverse incision through the oblique muscles and extending into the rectus sheath (that muscle being pulled inwards) may be adopted.

3. Where injury to the flexures of the colon or the spleen is suspected a paracostal incision through the muscles, if necessary extended in the same way into the rectus sheath, has been frequently done, gives good exposure and heals well.

4. Sometimes where a primary lumbar incision has been made to deal with a wounded kidney and the missile not being found the immunity of the peritoneal contents is doubted, it is useful to remember that the peritoneum can be opened and often explored, sufficiently at least to establish the point, through the lumbar region.

Whenever possible the incision should be made separate from the original wound (in the case of large wounds only is this impracticable as a rule) and closed completely to obtain first-intention healing, drainage-tubes being inserted through separate button-hole incisions. Often the original wound can be utilised for a drainage-tube. It is wise to excise the skin around the original wound and to cleanse and drain with care large ramifying wounds in the abdominal wall. Gas gangrene does occur in these cases and is very fatal. On the other hand, with a separate operation wound it is surprising what good first-intention healing is usually obtained despite sepsis elsewhere.

Closing the wound.—The greatest possible care should be devoted to this. It is a point upon which we would lay most especial emphasis. A disconcertingly large number of these wounds have given way, often a fortnight after operation. Do not allow any consideration of time to prevent a careful closure in layers. The patient can be allowed to come round from the anæsthetic directly the peritoneum is closed and it is not this part of the operation which gives rise to shock.

We have abandoned entirely the use of a single row of deep sutures except in the most desperate cases, but use deep sutures in addition frequently. They should be of very strong silkworm-gut, set well back from the edge of the wound and not tied too tight, while they should not be removed till the twelfth day. In practically all cases the abdominal wall should be carefully sutured in layers. We generally use chromic gut, but silk is safer for the peritoneum.

The subject of importance of care in this matter may seem to be laboured, but when it is realised that the incisions are larger and owing to frequent bronchitis and paralytic distension the sutures are subject to a greater strain than is ever the case in civilian abdominal surgery, it will be understood that this is a point where technique is specially to be considered, and that even where everything possible has been done disasters will occur which will suddenly impose upon the patient a second operation and may imperil his chances of recovery. Of course, the danger is chiefly from middle-line incisions in the lower abdomen, but unfortunately these cannot be avoided in many cases.

Examination of Abdominal Contents.

In those cases where the damaged area cannot be localised—either by the existence of a through-and-through wound or the finding of the missile—a more or less complete examination of the abdomen is necessary. Both to save time and shock it is desirable that this should be done in an orderly routine way. Even then it occupies a large fraction of the total time for the operation.

Several surgeons engaged in this work examine the small intestine first and deal with it before turning to the other injuries. We prefer to examine the whole injured area, and when possible find or trace the missile before starting any repairs. There is one trifling advantage in this, and that is that in a desperate case which has been undertaken as a forlorn hope it may be found that, for example, suture of the stomach, colostomy, and a double resection of small intestine would be necessary, it being manifest that the man will die on the table if this is attempted; the abdomen is closed and the patient sent back to the ward as inoperable, morphia being given at intervals until death occurs. If the method of dealing first with the small intestine is used, the surgeon will be led to a procedure which involves a death on the table and wastes time when several patients may be waiting. There is one exception to the rule, and that is where a leaking large intestine wound is disclosed at once. It should, of course, be cleansed and repaired forthwith to avoid contamination during the subsequent examination.

We conduct the routine examination as follows. When the middle-line incision usual in such cases is used, the cæcum is first felt and seen if possible, then the termination of the ileum is identified, and the small intestine brought out and examined in short lengths of a foot or so, the uninjured gut being rapidly returned by the assistant. The advantage of beginning with the ileum is that wounds are rather more frequent than in the jejunum. When a rent is discovered, the wounded portion is retained outside the abdomen, the position of the first rent or hole being marked by a light clamp or otherwise. If a large portion has to be kept out in this way, it is, of course, covered by hot towels with saline. The small intestine being examined, the transverse colon and sigmoid may be largely seen, while the flexures, rectum and bladder have to be felt, but it is surprising how readily a hole or tear can be detected in this way. In some cases the missile will be found loose in the pouch of Douglas, and it should always be looked for at this site if not found elsewhere.

Wounds of Upper Viscera.

In cases where the upper viscera are wounded the following points should be borne in mind.

Stomach wounds.—The stomach may be distended and yet a considerable hole or tear be present. If one hole only is found a second should always be looked for unless the missile is found in the stomach.

Liver wounds.—As has been said elsewhere, we do not operate on a case where this is the only lesion. If the wound in the liver is small and not bleeding it should be left alone. If large and inclined to bleed it may be packed. Suture is seldom possible, though it has been done successfully by one of us.

Spleen wounds.—If very small and not bleeding they may be neglected but bleeding is usually going on or is at once started by manipulation. Moderate-sized tears are sutured or packed. Suture is easier than in the liver. We have reserved splenectomy for the most serious cases.

Kidney wounds.—It is as well to remember that although many kidney wounds can be detected by palpation through the peritoneum if the abdomen is open, yet there may be serious laceration concealed by a hæmatoma. In all cases where a kidney, as well as the abdominal contents, was affected, we have dealt with the kidney through a separate lumbar incision. It is seldom possible to diagnose the extent of its injury otherwise, and for this reason one is never tempted to try a transperitoneal nephrectomy to save a second incision. As to whether to suture, pack, or remove the kidney, we have only done the latter where the tear extended right across the hilum and hæmorrhage was going on. In several cases an isolated portion of cortex of considerable size has been removed and the large gap sutured together with successful results.

Wounds of Intestines and Bladder.

As to the remaining viscera—intestines and bladder—the following are the results of our experience as regards technique.

Small intestine.—Where the holes are small a single row of Lembert's sutures or a purse-string is all that is necessary; double suture is only necessary for large tears which might bleed.

Resections.—The mortality of resection is nearly double that of simple suture, consequently wherever possible suture should be employed and resection should seldom be undertaken merely to save time. We have resected as much as 7½ feet successfully, and, curiously enough, these large resections seem to recover as well as much less extensive ones. It is as well to remember in such cases, where time is of particular value, that very large loops of mesentery may be taken up in each ligature if it be of stout silk and carefully tied.

We have generally done end-to-end anastomosis. Lateral anastomosis has been recommended strongly as giving

greater freedom from paralytic distension and obstructive symptoms afterwards. One of us has tried it in a number of cases. In our opinion there was nothing in the result to justify us in giving it any preference, and there is no doubt that it takes at least a quarter of an hour longer. In many very bad cases the end-to-end anastomosis has necessarily been done very hurriedly, but we have had no single case in which post-mortem examination failed to show a satisfactory union. Time should not be wasted in over-elaborate stitching in these anastomoses—we have seen a sufficient number to say with some confidence that the "leak" at the mesenteric attachment is a surgical "bogey."

Again, with a view to avoiding the effects of the supposed paralysis at the site of anastomosis or suture it has been suggested that where practicable the injured and repaired gut should be short-circuited. We have not done this, as our experience from post-mortem examination is that the paralysis is general, the result of peritonitis, and not limited to the injured area. Moreover, when account is taken of the fact that they are more serious cases, it is not more frequently associated with anastomosis than suture.

Large intestine wounds.—These are nearly twice as fatal as those of the small gut. Moreover, after their suture faecal fistula is only too frequent. The greatest care should be given to the suturing which, of course, is much more difficult than the small intestine; a double row of sutures should invariably be used and the gut should be carefully cleansed with antiseptics after the first is inserted. In addition a piece of omentum may be stitched over the repair. It may be necessary to make a separate "gridiron" incision in the flank to deal satisfactorily with ascending or descending colon wounds.

An important question which often arises is, Should one do a *colostomy* or not? When time is valuable and suture difficult one is tempted to bring the injured gut to the surface with or without a Paul's tube. Our advice is, never do so if suture can possibly be undertaken. The operation is a totally different one from a "civilian" colostomy, in which the gut is either left unopened or a Paul's tube firmly tied in at the highest point. In these cases there is already severe peritoneal infection and it is never possible to get a Paul's tube in really satisfactorily, so that the colostomy acts as a continual source of infection. Even if faecal fistula is inevitable, suture, when it can be done, closes the source of infection for some time. It will be seen how high the mortality of our colostomies has been, and we now regard it entirely as an operation of pure necessity where suture is impossible.

Wounds of the bladder.—Where there is an intraperitoneal wound only and this can be sutured, is it safe to do this without drainage of the bladder? We consider that it is, and have found that the result is just as satisfactory when the bladder is completely closed as when it is drained suprapubically. A catheter should be tied in, and, of course, in all bladder cases the pouch of Douglas is drained. Cases in which the missile has passed through the buttock and there is an extraperitoneal bladder wound which cannot be sutured are, like most buttock wounds, specially serious. The buttock is, of course, thoroughly drained, and, in addition, a tube can often be inserted outside the peritoneum and down into the space at the side of the bladder close to the wound in that organ. When such cases can be efficiently drained in this way they do well as a rule. In all wounds of the urinary tract hexamine should be given from the start of the treatment until all danger of sepsis is past.

Drainage of the abdomen after operation.—In every case where there has been escape of visceral contents we drain the pouch of Douglas. In cases where there has been no escape of contents, and, for example, a foreign body has been removed from the peritoneum only, a local drain is quite sufficient; we have found it inadvisable to dispense with it, though this has been done quite successfully. When a drainage-tube is near or in contact with a sutured large intestine wound it should be removed on the second day, as it may encourage a faecal fistula. Speaking generally, we find it quite unnecessary to retain any drainage-tubes for long—their purpose is served once a channel is formed.

After-treatment.

The subject of salines here has already been dealt with. Fowler's position is, of course, the rule. One of the most disappointing phenomena in these cases is the occurrence of a rapid collapse 12 to 24 hours after operation in a patient who has apparently rallied well from the primary shock. It is hardly likely that the condition is due to toxæmia from incipient peritonitis, and post mortem nothing has been found to account for it. The condition is best described as "*secondary shock*," but while it accounts for many deaths, is not easily explained or treated. Intravenous saline is useless; stimulants (strychnine and brandy) appear sometimes to have accounted for a second rally.

It is possible that the collapse represents the result of operating on a patient with too great a degree of primary shock—it is certain that it occurs in those with most well-marked shock at first—but since in so many patients of this class the chances without operation are almost nil, this view does not help one much. We believe, however, that secondary shock can be prevented, to some extent, by a short delay to warm and rest patients who come in a bad condition.

Most patients vomit at intervals on the day after operation and, speaking generally, these patients are more troubled by vomiting than "civilian" acute abdominal cases. Fluid should be resolutely withheld, despite the intense thirst, when this vomiting shows no sign of ceasing early; often 12 hours without anything by the mouth will stop it. In some such cases there is acute distension of the stomach, and where this is unmistakable a stomach tube has cured the condition, but it should not be used in a collapsed patient.

The rest of the after-treatment is devoted to aiding the patient's combat with his peritoneal infection, and while almost every one has, presumably, some degree of peritonitis it is surprising how comparatively infrequent ordinary general peritonitis is. The chief danger to a man shot in the abdomen when he can be operated on in reasonable time is not peritonitis, but shock and hæmorrhage. If these two could be entirely eliminated, it is safe to say that the total mortality would be reduced by 30 or 40 per cent.

The chief symptoms from supervening peritonitis are paralytic distension, vomiting, and constipation. There is, of course, a primary paralysis of the intestine after the wound, and in cases with little peritonitis this passes off in the first 24 hours. When, however, the paralysis due to peritonitis is superadded we get an exaggeration of these symptoms which in bad cases passes on in time to real obstruction. Fortunately, many cases stop short of this and yield to medical treatment.

As a prophylactic one of us gives hypodermic pituitrin, followed in half an hour by an enema on the day after operation. All of us agree as to the importance of getting the bowels open upon the third day if possible. When obstructive symptoms with paralytic distension threaten, one of the most valuable drugs is hypodermic eserine, gr. $\frac{1}{60}$ being given every two hours. Small doses of calomel, hypodermic pituitrin, and turpentine enemata are also used.

In cases where this fails and real obstructive symptoms come on, post-mortem examination usually reveals a condition of general peritonitis, with pockets of pus, adhesions, and often multiple kinks. The patients are usually desperately ill by the time such a condition is established, and the chance of doing anything by operation is not hopeful. Perhaps the best plan is to open up the wound and to search gently with the finger for any collection of pus, separating any adhesions close to the wound; this can sometimes be done without an anæsthetic, and we have had more than one case in which it appeared to save life, but, unfortunately, many more in which it failed. It has been suggested that a distended coil of gut should be drained by suturing in a small tube; we have tried this so far unsuccessfully, and the fact that points of obstruction are so often multiple does not render it very hopeful.

Tubes, as has been said, are removed early. Where gauze packing is used—in a liver or spleen—it is wisest to leave it alone for four days, and then if difficulty is encountered an anæsthetic is often avoided by removing it by stages.

Lastly, we would emphasise the fact, which experience has shown, that these patients are often a good deal upset by the journey to the base, and on no account should a patient be sent earlier than can be avoided or before the end of a week, however well he is. Most of our patients leave for the base in between 10 days and a fortnight.

TABLE I.—*Mortality Results of First 500 Operations.*
Total: 245 lived, 255 died. Recovery-rate, 49 per cent.

Class.	Nature of visceral injury.	Total No.	Result.		Recovered, per cent.
			Lived.	Died.	
1	Stomach—No other injury	9	6	3	66·6
	,, All stomach wounds	23	8	15	34·7
2	Small intestine—Sutured; no other injury ...	64	40	24	62·5
	,, ,, ,, all cases	96	53	43	52·2
	,, ,, Resections alone	58	18	40	31·0
	,, ,, ,, all cases	90	26	64	23·8
3	Large intestine—Sutured; no other injury ...	45	21	24	46·6
	,, ,, ,, all cases	119	43	76	36·1
	,, ,, Colostomy	13	2	11	15·3
4	Liver—Pure liver wounds	27	13	14	48·1
	,, All ,, ,, ...	58	19	39	32·7
5	Spleen—No other injury	11	6	5	54·5
	,, All cases	17	8	9	47·0
6	Kidney—Pure kidney wounds	10	6	4	60·0
	,, All cases	20	12	8	60 0
	,, Nephrectomies	2	2	0	100·0
7	Bladder—Pure bladder wounds	9	5	4	55·5
	,, All bladder cases	25	12	13	48·0
8	Rectum—Alone	3	2	1	66 6
	,, All cases	9	5	4	55·5
9	Laparotomy—(*a*) With no injury found	57	53	4*	92·9
	(*b*) Retroperitoneal hæmatoma only	23	9	14	39·13
	(*c*) Bruising of intestine and hæmorrhage	9	7	2	77·7
10	Cases in which peritoneum was opened by original wound but no visceral injury... ...	10	6	4	60·0
11	Cases with protrusion of intestine†	16	6	10	37·5
	,, ,, ,, ,, ,, uninjured	5	3	2	60·0
12	Wounds of chest and abdomen‡	27	5	22	18 5
13	Gas gangrene of abdominal wall	11	1	10	9·0

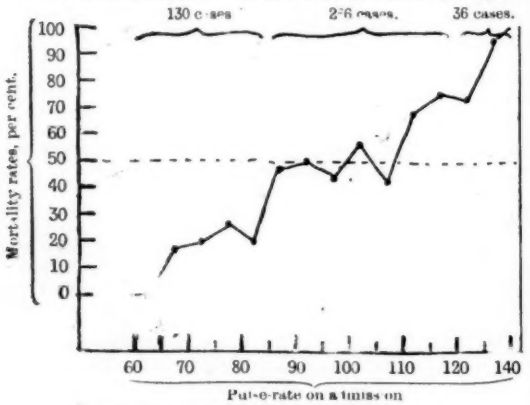
* All these cases had other wounds. None died from operation.
† Included in some cases under small intestine.
‡ These cases had wounds of lung. All that recovered had only solid viscera injured in the abdomen.

TABLE II.—*Regional Mortality of 467 Cases.*

—	Lived.	Died.
Anterior abdominal wall	96	97
Flank or loin { Right	28	20
Flank or loin { Left	34	29
Chest* { Right	26	25
Chest* { Left	25	20
Buttock (either side)...	18	49

* I.e., wounds above rib margin—not only wounds of lung, for mortality of which see Table I.
N.B.—In this table where there are through wounds with exit and entry in different regions the case is classified in the category standing lowest in above scale—i.e., "Anterior abdominal wall and buttock"—under "Buttock."

Curve to show Relation between Pulse-rate and Mortality.



Note on the foregoing Tables and Chart.

Table I.—The whole paper forms a commentary on this table. Note especially the high mortality of colostomy, retroperitoneal hæmatoma, gas gangrene of abdominal wall, and wounds of lung and abdomen. It is especially significant that our only recoveries in the latter cases were wounds of solid viscera where expectant treatment might have sufficed.

Table II.—Here the cases are classified according to region wounded. The chief value of this lies in bringing out the high mortality of buttock wounds. Many of these cases had slight visceral injuries. Death is due to hæmorrhage and sepsis in the buttock and to pelvic cellulitis. Wounds of loin and flank and chest wall include most of the solid viscera wounds and most where nothing was found on operation, hence their mortality below the average.

Pulse chart.—This shows very clearly that when the pulse is between 85 and 110 the prognosis is that of the average—about 50 per cent.—and there is little to choose between these rates. Below 85 prognosis is very good and above 110 very bad. In preparing this table it was noticeable that most fatal cases with low pulse-rate were buttock cases or died of other wounds.

Conclusion.

All statistics are full of fallacies, and none more so than the mortality rates of different series of these cases. As will be seen, wounds of a single viscus are in a small minority. Cases comparable as regards the abdominal condition are often differentiated entirely by some severe complication in the nature of a wound elsewhere. Comparatively slight abdominal cases develop perhaps gas gangrene or bronchitis and pneumonia, while the most serious may, in contrast, have no other wound and every condition in his favour. Mental shock and exhaustion and fear are noticeable factors in a patient's course, and at one time we had a number of cases who had been in addition poisoned to varying degrees by gas shells.

Any attempt at exact statistical comparisons will require an enormous series of cases. All one can say at present is that if large numbers are taken about half survive after operation. The mortality of all cases is a much more difficult matter, since in those which recover without operation it is often impossible to say whether the abdominal cavity was penetrated or not.

In the heavy work with the main Somme fighting we kept no careful notes of these, and so we refrain from publishing figures which might be misleading, but we would state emphatically from the consideration of a small series recently worked out carefully with the aid of a sectional atlas that there have been many recoveries from wounds of the hollow viscera without operation.

We have made no attempt to present the individual cases appertaining to each of us separately; but, as a matter of fact, the mortality rate of each operator's series works out at very nearly the same figure. It is essentially in the diagnosis and selection of these cases rather than in the technique of operating that experience is of such value, and it is here that one feels that one continues to make definite progress as it increases.

Not many series of abdominal cases have as yet been published, and none that we are aware of so large as this, and we would emphasise the futility of attempting comparisons of small series as to "results." In each of our individual series a portion of 30 or 40 consecutive cases can be picked out which shows either an extremely low or an appallingly high mortality. It has happened to one of us to get a dozen consecutive cases which have lived, and to another as many in succession that have died. Two surgeons of equal merit and experience may differ in the extent to which they will go in operating upon the "forlorn hope" type of case—a difference which will show itself in statistics.

So that our final word on statistics is that no surgeon should let himself be troubled by them or allow any consideration for them to influence his judgment in an individual case. The vast majority of the patients who die, die in the first 24 hours from shock and hæmorrhage. There is only one really outstanding problem in the matter, and that is the enormously difficult one of the nature and treatment of shock. Its solution, which can hardly be expected in this war, will alone make any dramatic and striking difference in the death rate of these cases.

The last point to touch on is as to the fate of the cases who leave us for the base and are marked "lived" in these tables. Owing to a system in use since July we send each patient down with a card, which is returned to us from the base with an account of him, while later we hear from

England as to the final result. Sufficient of these returns are not yet in to include them in our table, but we can say confidently that the number who die after they leave us is very small, certainly well under 5 per cent., while we already know of several who are fit for duty.

Taking it upon the whole, recovery, if death does not take place in the first few days, is better after these abdominal wounds than after the severest type of head, chest, or limb wounds. It is likely that some of our patients will have some lengthy disorders of digestion or nutrition. Cases of large resections seem especially likely to do so; one imagines that adhesions and ventral hernia will frequently require attention for some time to come.

In final conclusion we apologise for shortcomings in the writing of this paper by pointing out that it has been written and the facts and statistics collected in short intervals of leisure "in the field."

A Lecture
ON
THE TREATMENT OF SECONDARY HÆMORRHAGE, WITH SPECIAL REFERENCE TO GUNSHOT WOUNDS.

Delivered in the University of Bristol in the Autumn Session, 1916,

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GENTLEMEN,—In surgical practice in civil life secondary hæmorrhage is of rare occurrence, but in connexion with the large number of suppurating gunshot wounds with which we have to deal at the present time it is quite common, and as it is necessary to have a very clear idea in our mind as to how a case, which may be one of extreme urgency, should be treated, it is worth while considering the subject at some length.

THE NATURE OF THE HÆMORRHAGE.

Secondary hæmorrhage is always due to a failure by nature to occlude permanently an injured vessel, and in the great majority of cases an injured artery. It does not usually occur before the second week after the injury, but may occur earlier. I have had a case myself of secondary hæmorrhage from the anterior tibial artery in a suppurating compound fracture as early as the fourth day. It must be clearly distinguished from what is called reactionary or recurrent hæmorrhage, which occurs some hours after an injury or operation, and may be due to increased force of the circulation restarting the hæmorrhage or to slipping of a ligature. Secondary hæmorrhage almost always occurs in suppurating wounds; a great number of such wounds, complicated by the occurrence of secondary hæmorrhage, at the military hospital are compound fractures.

In order that you may understand how best to deal with it, it is very important that you should have a clear idea of its nature. It may start as quite an insignificant bleeding. Perhaps the nurse may tell you that when she removed the dressing she found a few clots of blood in it, but that the bleeding had quite ceased. Now if a large artery is known to have been injured, or even if the wound track runs in the neighbourhood of a large artery, this is a very serious occurrence. You must always impress on nurses that they should at once report any bleeding from a wound, however trivial it may seem. With no more bleeding than this I have opened up a suppurating gunshot wound of the leg and found an opening in the posterior tibial artery. If once secondary hæmorrhage has occurred from an injured artery it is almost certain to recur, and any recurrence may be so severe as to be fatal.

It may be well to consider what may cause bleeding from a wound, in the second week, besides injury of an artery. Of course, if granulation tissue, which is very vascular, is probed or otherwise injured, it will probably bleed; but, apart from any injury, it is stated in some of the text-books that granulation tissue may bleed, and what is described as "parenchymatous oozing" is said to occur from sloughing wounds, and to be apt to recur, and ultimately to prove fatal. I have had one case of suppurating compound fracture in which bleeding took place twice within 24 hours, and as the wound was close to a main artery I opened it up and found it full of clot. But I could not find any bleeding vessel, only small areas of bleeding granulation tissue, and after cleaning out the wound I packed it with gauze saturated with turpentine, as advocated by Mr. Grey Turner, of Newcastle,[1] and no recurrence of the hæmorrhage took place.

In another case in which there had been recurrent attacks of hæmorrhage for a fortnight before I saw the patient and he had become quite anæmic, when I opened up the wound, which was close to the popliteal space, the only bleeding vessel I could find was a venous branch. This I tied, and there was no further bleeding. In a case of very smart secondary hæmorrhage from a gunshot wound of the calf, in which from the position of the wound track one of the main arteries of the leg might have been wounded, I found the bleeding was from an arterial muscular branch.

TREATMENT OF SECONDARY HÆMORRHAGE FROM A VESSEL IN CONTINUITY.

I will first describe how I think secondary hæmorrhage should be treated, and then refer to the recommendations of other surgeons as to other methods, and I will consider first secondary hæmorrhage from a vessel in continuity, and later secondary hæmorrhage from stumps. You must clearly recognise that even if the bleeding has ceased, and however slight it may have been, something must be done if it is known that a main artery is injured, or even if from the proximity of the wound to such a vessel it seems probable that it is, and I think the only really safe way of dealing with such a condition is, as soon as possible, to cut down on the bleeding vessel and tie it. I say as soon as possible, because although the first hæmorrhage may be quite slight a second may be fatal, and this may come on at any time.[2]

You will remember that in dealing with primary hæmorrhage it is always wise to tie at the bleeding spot, and to tie both ends of a divided artery. Proximal ligation is not to be recommended, for it may not be the main artery which is wounded but only a branch, and it would not therefore be necessary to tie the main artery at all, and if you perform proximal ligation as soon as the collateral circulation begins to form blood is brought to the distal end and hæmorrhage may recur; and, moreover, if you tie the vessel some distance above the point where it will be occluded in the wound, you get a double block in the artery, and, in the lower limb at any rate, run a risk of causing gangrene. For these reasons you should whenever possible open up the wound track and find the bleeding vessel and tie it, and, as in the case of primary hæmorrhage, you should always tie an artery both below as well as above the opening into it to prevent bleeding from the distal end when the collateral circulation becomes established. You will not always find the bleeding is from a main artery, as I have already said, but the chances are so great that it will be from such a source if the wound track runs in the neighbourhood of a large artery, that it is certainly wise to act as if we knew the bleeding came from a main artery.

But there are a few situations in which you cannot reach the artery, and sometimes when you open up the wound the bleeding artery is surrounded by such sloughy tissue no ligature would hold. In such circumstances you are obliged to perform proximal ligation. I have had to ligature the external carotid for secondary hæmorrhage from a branch of the internal maxillary artery. But proximal ligation is to be avoided if you can tie at the bleeding spot. It may be much easier to perform proximal ligation than to tie at the bleeding spot in a deep wound, but it is not good surgery. I have just stated that the wound may be too sloughy to tie the artery at the seat of bleeding. But you must recognise that the vessel may be surrounded by soft granulation tissue, and

[1] THE LANCET, 1915, ii., 226.

[2] Sir G. H. Makins (British Journal of Surgery, January, 1916, p. 367) has pointed out that in cases of traumatic aneurysm, if slight bleeding occurs from the external wound during the first few days after the wound is inflicted, no operative measures are required, for this slight and early hæmorrhage may be simply an escape of blood from what he calls the "arterial hæmatoma."

it may not appear possible to tie it at the bleeding spot, and yet if you scrape away the soft tissue with the blunt end of the scalpel you may find that you can expose the artery where it will take a ligature. In some cases a ligature may be passed around the artery and the surrounding soft tissues, or we may be able to catch the bleeding vessel together with some of the surrounding soft tissue in pressure forceps, and leave them on for 24 or 48 hours.

But having found and tied the bleeding vessel, we must do more than that—we must take measures to try to get the wound less septic, or secondary hæmorrhage may even recur at the seat of ligature. At the time of ligation we must well clean out our wound with swabs, cut away all sloughs, and then apply for a very definite period of time (just douching the wound is not enough) a strong antiseptic such as eusol. But it would be much better to apply the antiseptic continuously for some days, either by constant irrigation or by Carrel's method.

Immediate Treatment.

I must now say something about the immediate treatment of secondary hæmorrhage—what we may call first-aid treatment. Every military surgical ward should have a rubber tube tourniquet readily available, and the nurse or orderly should be instructed how to make a tourniquet out of something certain to be at hand if the actual tourniquet was not, and they should also be instructed that it must be put on tight enough to occlude the arteries and not so as merely to cause venous congestion, and so increase rather than stop the hæmorrhage. If the hæmorrhage was not very great it would be better for the nurse or orderly to call medical aid, so that the tourniquet might with greater certainty be applied effectually.

If operation cannot at once be performed the patient should have a hypodermic injection of morphia, for the pressure of the tourniquet round the limb may cause much distress. It should be left on until the patient is under the anæsthetic and the wound opened up; then it should be released, but only so that, if necessary, it can be instantly reapplied. When it is released the vessel will very likely bleed and can be secured, but it may not; but even then we may find an opening into an artery by careful search in the wound. We may perhaps start the bleeding by rubbing over the wound surface with a swab and so detach some clot which is temporarily stopping the opening in the vessel. If we cannot find any injured vessel we shall have to be content with very firm packing of the wound with gauze saturated with turpentine and watch the case with great care for any recurrence of the bleeding. If serious bleeding did recur and a second attempt to find the bleeding vessel failed I suppose we should have to resort to proximal ligation of the main artery supplying the region of the wound.

Secondary Hæmorrhage Not Controllable by Pressure on Proximal Vessel: Groin and Gluteal Region.

But there are some regions in which secondary hæmorrhage from a large artery may take place, but the hæmorrhage cannot be controlled by a tourniquet or even by digital pressure on a proximal main artery. The root of the neck, the groin, and the gluteal region are such areas.[3] In these regions immediate pressure in the wound must be made, and all nurses employed in military surgical wards should be instructed how to employ it. The wound or wounds from which the hæmorrhage comes must be tightly packed with gauze, as far as it is possible to get a gauze plug into some of these gunshot-wound tracks, and digital pressure kept up on the gauze plug where it projects from the wound until the hæmorrhage has ceased, or if it can only be controlled by keeping up such pressure, it must be kept up until the patient is under the anæsthetic and the surgeon is ready to open up the wound.

In the case of the groin or gluteal region, if the hæmorrhage has been severe it is a question whether it will be safe to remove the plug without first obtaining control over the main supplying artery. For when we remove the plug the hæmorrhage may again be severe, and no tourniquet can be applied to control it while we search for the injured vessel. It seems to me that we should make the attempt—i.e., we should remove the plug and see if violent hæmorrhage will recur. If it does not, we can safely open up the wound and search for the bleeding vessel. If it does, it would be almost impossible to do so in a deep wound converted into a pool of blood, and we should have to plug again at once. We must then ligate the main artery through the abdomen, the external iliac in the case of a groin wound, and the internal iliac in the case of a gluteal wound. An alternative method would be the application of Crile's clamp to the artery, so that it would not be permanently occluded at this spot, but the objection to this method would be that we should have again to open the abdomen to remove it after dealing with the septic wound. But there would be no risk in doing this if adequate precautions were taken in changing gloves, towels, &c., and resterilising instruments, and it would be a great advantage to avoid the risk to the circulation of the limb of proximal ligation.

Having thus controlled the main vessel we should, after closing the abdominal wound and applying an aseptic dressing to it and covering this over with some waterproof material, then search for the bleeding vessel in the gunshot wound and tie it there. We should not be content with proximal ligation, which has really only been used as a substitute for the application of a tourniquet, because the bleeding may recur from the distal end of the injured artery if we do not tie it at the bleeding spot and tie both ends.

The Root of the Neck.

In the neck, of course, hæmorrhage can be controlled from the external or internal carotid, or the region of the bifurcation of the carotid, by digital pressure on the common carotid, but we may have to deal with secondary hæmorrhage at the root of the neck. If it has not ceased when we operate it must be controlled by digital pressure in the wound. There would be no room for a gauze plug because we have to control the proximal artery so close to the bleeding spot. In secondary hæmorrhage from the third part of the subclavian we might be able to tie the first part without resection of the clavicle, but when the hæmorrhage is from a vessel on the inside of the scalenus anticus it might be necessary to resect the inner part of the clavicle so as to get at the artery on the proximal side in order to control the circulation in it while we dealt with the bleeding spot in the vessel; for if the bleeding had not ceased at the time of the operation but had to be controlled by digital pressure in the wound, if the bleeding vessel were a main artery it would only be possible to tie it after control of the proximal trunk. If the bleeding was coming from the thyroid axis or one of its branches or the vertebral artery it might be possible to pick it up and tie it, after a free exposure of the area. But after digital pressure had been removed I do not think hæmorrhage from a main artery could be effectively dealt with until the proximal vessel was controlled.[4]

Of course, in some desperate cases, as in wounds in a region, space is so limited for access to the vessels, and with the parts infiltrated with blood and perhaps sloughing, it may be that the only thing we may be able to do is to maintain firm plug pressure. In making such pressure I would suggest that an elastic bandage should be carried over the root of the neck and under the axilla of the opposite side, and then

[3] I have not included the axilla with the regions referred to, because it would be possible to control the third part of the subclavian artery by digital pressure, but it would be much safer to expose it, and apply to it a Crile's clamp.

[4] In some of these desperate cases of secondary hæmorrhage on the inner side of the root of the neck, or if a large vein were wounded behind the inner end of the clavicle in the removal of malignant glands in this situation, it has seemed to me that removal of the inner end of the first rib, together with the corner of the sternum to which it is attached (as well as the inner end of the clavicle), might enable the surgeon to secure the bleeding vessel when it would not otherwise be possible. But this procedure would involve a risk of wounding the internal mammary artery which lies just behind the cartilage of the first rib. The best plan would be, after removal of the inner end of the clavicle, to catch the artery in forceps as it was passing downwards to lie behind the cartilage of the first rib. It would be necessary also to protect the structure lying beneath this corner of the sternum and the inner end of the first rib with a metal spatula when dividing the bone, and it would be necessary not only to detach the sterno-mastoid and pectoralis major from the front but the sterno-hyoid and thyroid would have to be separated from the posterior aspect of the corner of the sternum. A very interesting case of ligation of the first part of the subclavian artery for secondary hæmorrhage is recorded by Victor Bonney (Brit. Med. Jour., 1916, i., 754). He was able to tie the artery at its junction with the innominate artery after resection of the inner end of the clavicle by making traction on it, and he advocates such traction as a means of reaching these deep vessels. He says in his case, as in others, the upper end of the innominate artery and the root of the subclavian lay well behind the manubrium sterni. Fortunately, in his case bleeding had ceased before the operation was performed.

the axillary loop should be kept well down in the axilla by a bandage carried through it and round the perineum.

Conditions Found on Operating.

It may be interesting to consider exactly what conditions we are likely to find when we open up the wound to deal with the bleeding. In nearly all my cases the hæmorrhage was found to be coming from a wholly or partly divided artery, and in most cases a main artery, though in one case it was from the peroneal in the lower part of the leg, and in another from only a muscular branch, though in this case the hæmorrhage was quite smart. I have already referred to a case in which the hæmorrhage had been recurring at frequent intervals for a fortnight and the patient had become seriously anæmic before I saw him, yet the hæmorrhage was only from a vein and it was quite stopped by its ligation. These three cases well illustrate how unwise it would be to tie the main vessel on the proximal side. If I had done so I should have tied the popliteal artery in one of the cases and the superficial femoral in another without any need.

My experience in these military cases has taught me the interesting fact that an artery such as the ulnar or posterior tibial may be very freely opened in a gunshot wound and may be found open and bleeding as late as the fourteenth day, and yet except for some hæmorrhage at the time of the injury no hæmorrhage has occurred until the fourteenth day. It seems likely that the opening in the vessel is plugged by clot, and that eventually that clot is disturbed or dissolved, but there is no apparent reason why this should take place at the particular period when it does. The hæmorrhage in these cases is not associated with movement of or by the patient. And another interesting question is, Why does the bleeding spontaneously cease, as it certainly may, even if severe? You may open up the wound and find a considerable-sized opening or a complete division of the artery, and yet the hæmorrhage, which may have been severe, has ceased. Of course, when a patient becomes collapsed from loss of blood hæmorrhage very often ceases, but this condition was not present in the cases I refer to.

I should here like again to call your attention to the fact that sometimes you may get marked hæmorrhage from a suppurating gunshot track in the neighbourhood of a large artery, and yet when you open up the wound, though you find it full of clot, you may fail to find, even after the most thorough search, a definite bleeding vessel, but the blood is coming from certain areas of granulation tissue. I had such an experience in the case of gunshot fracture of the upper end of the humerus (and I have already briefly referred to the case), where the wound track ran close to the brachial artery, and when it was opened up it was found full of clot. The best plan in such a case is to clean out the wound, and then to pack it tightly with gauze saturated with turpentine.[5] This may stop such hæmorrhage.

In some cases in which you have to operate for secondary hæmorrhage you may find the opening in the artery communicates with a collection of old clot in a cavity in the tissues (a traumatic aneurysm) and yet there is an external wound, and through that wound hæmorrhage may occur as late as the fourteenth day. I have met with this condition in connexion with a gunshot wound of the posterior tibial artery; and in the case of a boy I operated on in civil practice frequently recurring hæmorrhage took place from a punctured wound of the sole of the foot. At the operation I found a cavity in the tissues containing old firm clot, and with this, through a minute puncture, the external plantar artery communicated. Recurrent bleeding took place through a sinus in the sole as late as a month after the injury. In another case in which I had to operate for secondary hæmorrhage (also in civil practice), associated with a septic compound fracture of the tibia, I found a small aneurysmal sac, almost the size of a pea, on the anterior tibial artery, and this sac had perforated. Its wall was white and very soft, and evidently due to septic change in the vessel wall. The hæmorrhage occurred as early as four days after the injury.

Other Methods of Treatment.

I have described the method of treatment which I think should be adopted in cases of secondary hæmorrhage, but I should like to call attention to other methods which are advocated. One method which is recommended in one of the text-books of surgery is plugging the wound. It is said that if the hæmorrhage is not severe and does not come from a large artery, it may be treated by packing the wound firmly with gauze. But how are we to know that it does not come from a large artery if the wound track is anywhere in the neighbourhood of one, and even if the more superficial part of the wound track is not near a large artery yet such tracks are often very long and complicated and may extend much farther than we may think. No doubt in many cases in which we can pack the whole wound with gauze, especially if it is wrung out of turpentine, this may stop the hæmorrhage, but there is danger of a very serious or even fatal recurrence of the hæmorrhage if a large artery has been wounded. But in many, probably in most, cases of secondary hæmorrhage in gunshot wounds the wound is not an open wound that can be packed to the bottom. I do not think in any of my own cases of secondary hæmorrhage the hæmorrhage could have been treated by packing the wound with gauze without first freely opening it up. I think all wounds complicated by secondary hæmorrhage I have had to deal with have been deep tracks. And if you have to give the patient an anæsthetic and open up the wound in order to pack it, clearly it would be better to search very thoroughly for a bleeding vessel in order that you may tie it. Even as a temporary measure, whenever it can be done, it would be safer to put on a tourniquet than to plug the wound—i.e., until operation could be performed; but, of course, in those positions in which no tourniquet could be used and the artery cannot be compressed on the proximal side plugging is the only temporary measure we can adopt. And if secondary hæmorrhage occurs in some locality where there is no possibility of performing an operation, such as during transit to hospital, and the wound is in such a position that no tourniquet could be applied, all we can do is to pack the wound with gauze, wrung out of turpentine, if that is available.

Another method of treating secondary hæmorrhage to which I must also refer is the combination of plugging of the wound with compression of the artery on the proximal side for some days by means of a screw tourniquet. But this is almost intolerable to the patient and would require frequent large hypodermic injections of morphia, and after causing much distress to the patient it might not be successful, or if it did prevent recurrence of the bleeding it might cause a thrombus to form in the artery at the seat of compression, and thus a double block in the vessel and in the lower limb, if not in the upper; this would involve a risk of gangrene. Moreover, this painful and somewhat risky process might be unnecessary, for it might not be a wound of the main vessel at all, but only of a branch which might be easily found and tied, if the wound were opened up.

It is sometimes recommended that after one secondary hæmorrhage a screw tourniquet should be applied over the main vessel, and the nurse should be instructed how to screw it down if the hæmorrhage recurs. But who would care to trust to such a method? Very likely, if it did recur, the tourniquet would have slipped off the artery, and the nurse would not know exactly the spot where the artery was lying, and therefore in screwing it down might not control the vessel at all. If this method were adopted the only safe way would be to put an indelible mark on the skin over the artery and instruct the nurse to screw down the tourniquet on that. But it is much safer not to trust to the nurse dealing with what may be a very severe recurrence of the bleeding, but to open up the wound and deal with the bleeding vessel.

SECONDARY HÆMORRHAGE FROM STUMPS.

I should like now to consider how secondary hæmorrhage from stumps should be treated. We have the two essential differences between the hæmorrhage from stumps and from an artery wounded in continuity, that in the former the risk of either bleeding from the distal end of the artery, or of gangrene of the limb, is not present, and if we tie the main vessel close to the stump this will stop bleeding from a branch, if it happens to be a branch which is bleeding, as well as from the end of the main vessel, unless that branch should come from the main artery above the seat of ligation. Such proximal ligation must be close to the stump, or we should get blood brought to the injured vessel by the establishment of the collateral circulation between the seat of ligation and the injured vessel.

[5] THE LANCET, 1915, ii., 226.

Proximal ligation has great advantages. In the first place you can make an aseptic wound for your ligature, and in the second place you avoid disturbing the healing process in the stump. We could well treat in this way secondary hæmorrhage from a stump in the lower part of the thigh, where the only large artery would be the superficial femoral or the popliteal. In the upper part of the thigh the bleeding might come from either the superficial femoral or the profunda, but if we tied the common femoral we should control both.

In the lower part of the leg the hæmorrhage might come from any one of the three main arteries there, and we could hardly tie all three main vessels higher up in the leg, and so we should have to open up the stump and deal with the bleeding vessel there. In the upper part of the leg, however, we might quite well control bleeding from either of the three arteries by tying the popliteal just before its division.

In the upper arm, the only main artery being the brachial, we could well adopt proximal ligation, and in the forearm we could tie either the brachial at the bend of the elbow, or both forearm main arteries, according to the level of the amputation.

TYPES OF TUBERCLE BACILLI IN CERVICAL AND AXILLARY GLAND TUBERCULOSIS.

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(For the Medical Research Committee.)

IN continuation of my work on cervical gland tuberculosis, of which an account was published in THE LANCET in June, 1915, I have examined bacteriologically material from a further series of 52 persons suffering from enlarged cervical or axillary lymphatic glands. This additional material was obtained in order to bring up to 100 the total number of strains of tubercle bacilli isolated by me from cases of cervical gland tuberculosis. The desired number of strains was secured in May, 1916, and the experimental investigations in connexion therewith were completed in October, 1916.

In this communication I propose, first, to state the results obtained from investigation of these 52 new cases, and, finally, to summarise the whole of my observations upon the types of tubercle bacilli found in cervical gland tuberculosis.

For supplying me with the material and clinical particulars of the 52 cases I am much indebted to Colonel C. J. Bond, Leicester; Mr. H. J. Gauvain, Alton; Colonel J. Griffiths, Cambridge; Major R. E. Kelly, Liverpool; Dr. A. H. Miller and Miss M. S. Gordon, Manchester; Mr. F. C. Pybus, Newcastle; and Surgeon R. A. Rankine, R.N. The material has consisted of glands removed by surgical operation and pus aspirated from glandular abscesses or collected on the dressings of discharging neck sinuses. The methods of investigation have been the same as those described in my previous report.*

The work was carried out in the Pathological Department of the Field Laboratories, University of Cambridge, on behalf of the Medical Research Committee.

I. *Results of Investigation of Material from 52 Persons Suffering from Enlarged Lymphatic Glands.*

(A) *Cases which gave Negative Results.*

The material from 17 of the 52 cases did not produce tuberculosis in guinea-pigs. In 4 of these negative cases the original material was pus or dressings from neck sinuses. In 6 cases the material consisted of enlarged cervical glands, which on section were either hyperplasic or contained purulent foci and were not definitely tuberculous; microscopical examinations and cultivation experiments in these 6 cases were likewise negative. In 7 of the 17 cases the material, enlarged cervical glands, was macroscopically tuberculous. The glands showed on section caseo-calcareous nodules and tubercles, and in 3 of the cases tubercle bacilli were found on microscopical examination. Direct cultures from each material remained sterile.

* THE LANCET, June 19th, 1915, p. 1275.

(B) *Cases from which Tubercle Bacilli were Isolated in Culture.*

The material from 35 cases produced tuberculosis in guinea-pigs and cultures of tubercle bacilli were isolated either directly from the original material or through the guinea-pig. The cultures are divided into three groups, composed respectively of (1) standard bovine, (2) standard human, and (3) atypical strains. The results obtained with each group of cultures are described separately. The clinical particulars and the result of the bacteriological examination of each of the 35 cases are set out in Table II.

(1) *Standard Bovine Strains.*

From 15 of the 35 cases cultures were obtained which produced in rabbits the pathogenic effects of standard bovine tubercle bacilli. All except one of these strains were dysgonic and exhibited the same range of variation of cultural characteristics as tubercle bacilli of bovine origin. The exceptional strain grew rather more luxuriantly (on glycerine egg and glycerine agar) than any strain which I have so far found in bovine tuberculous lesions, though not with the luxuriance of standard human strains. The eugonic character of this strain was not altered by passage through the body of the rabbit. None of the viruses was tested in culture on the guinea-pig, since the original material of each had produced typical tuberculosis in this species of animal.

The results in rabbits of the inoculation of the 15 strains of culture are briefly summarised in Table I. The rabbits

TABLE I.—*Experiments on Rabbits with Virulent Strains.*

No. of case.	No. of rabbit.	Duration of life.	Result.
		Days	
114	1632	K. 58	G.M.T. of moderate not full severity.
	1663	D. 47	G.M.T. severe in lungs only.
	1815	D. 50	Typical G. T. of organs and glands.
	1816	D. 27	" " "
118	1757	K. 50 (ill)	Typical G.T. but only few lymph glands affected
	1758	D. 46	Typical G.T. of organs and glands.
122	1788	D. 53	" " "
	1789	D. 67	" " "
133	1940	K. 59 (dying)	" " "
	1941	D. 42	" " "
139	1978	D. 44	" " "
	1979	D. 69	Typical G.T. but liver and spleen not affected
143	2011	D. 19	Moderate G.T.
	2012	D. 73	Typical G.T. of organs and glands.
	2 53	D. 97	Chronic G.T.
146	2009	D. 45	Typical G.T. of organs and glands.
	2010	D. 60	" " "
148	2044	D. 56	" " "
	2060	D. 53	" " "
	2001	D. 51	" " "
150	2023	D. 72	Moderate G.T.
	2024	D. 40	Typical G.T. of organs and glands.
151	2045	D. 91	Moderate G.T.
	2046	D. 31	Typical G.T. of organs and glands.
153	2058	D. 67	" " "
	2059	D. 26	" " "
156	2054	D. 36	" " "
	2055	D. 28	" " "
157	2 68	D. 37	" " "
	2057	D. 61	" " "
158	2056	D. 35	" " "
	2 57	D. 47	" " "
159	2 64	D. 54	" " "
	2065	D. 38	" " "

K. = Killed. D. = Died. G.(M.)T. = General (miliary) tuberculosis.

were inoculated subcutaneously between the shoulders, each with 10 mgm. of moist growth from young serum cultures. The initial weights of the rabbits ranged from 1200 to 2800 gm.

(2) *Standard Human Strains.*

From 19 viruses (18 cervical and 1 axillary gland) cultures were obtained which grew on serum and glycerinated media with the characteristic luxuriance of the human type of tubercle bacillus. The virulence of these 19 viruses was tested on the guinea-pig by the intraperitoneal inoculation

of original material, and on the rabbit by the subcutaneous inoculation of culture. As a result of these tests, 17 of the 19 viruses could be readily classified as of standard human type—that is, the original material produced typical tuberculosis in guinea-pigs and the culture proved of low virulence for the rabbit.

With the other two viruses (Nos. 128 and 129) the results of similar tests were inconclusive. The original material of these viruses produced very slight tuberculosis in guinea-pigs, and a culture of each gave rise in the rabbit to local tuberculosis only. Further experiments were therefore necessary to determine whether or not this limited pathogenic effect was due to attenuation of the viruses. Cultures of the viruses were accordingly tested on the guinea-pig, one of the two animal species which differentiate standard human from attenuated human viruses. The culture from virus 128 was tested twice on guinea-pigs. On one occasion 2 guinea-pigs were inoculated subcutaneously, each with 1 mgm., and both animals died of typical severe general tuberculosis in 96 and 108 days respectively. The second test was made on three guinea-pigs, one being inoculated intraperitoneally, the other two subcutaneously, each with 1 mgm. The former guinea-pig died in 18 days of tuberculosis, not very severe, and hæmorrhagic pleural effusion. One of the subcutaneously inoculated guinea-pigs died in 50 days of general tuberculosis of mild type. The third guinea-pig was killed 228 days after inoculation, and showed tuberculosis limited to the site of inoculation and near by glands. The results in guinea-pigs with this virus are conflicting and difficult to interpret. But in view of the fact that 4 of the 5 guinea-pigs inoculated with culture of the virus died of tuberculosis, the disease in 2 being typical and of maximum severity, the slight effect in the fifth guinea-pig should, I think, be regarded as due to some accidental circumstance. I have therefore classified the virus with standard human viruses. The culture of the other virus (No. 129) did not produce typically severe tuberculosis in any of the guinea-pigs inoculated and for this reason I have included it among the atypical viruses. Thus, of 19 eugonic viruses, 18 are classified as standard human viruses and 1 as atypical.

The results obtained in rabbits by the inoculation of the 18 standard viruses are summarised as follows:—

The (young serum) cultures of the viruses were injected subcutaneously into 27 rabbits, the doses ranging from 10 to 50 mgm. One rabbit died prematurely in 30 days and showed very slight disseminated tuberculosis. Of the remaining 26, 2 died 68 and 86 days after inoculation from causes other than tuberculosis and 24 were killed in periods varying from 98 to 150 days. In 2 of these 26 rabbits the disease was confined to the site of inoculation, and in 2 others there was extension to the nearest glands. In the other 22 rabbits there was besides a local lesion and (in 8) disease of adjacent glands some amount of disseminated tuberculosis. The lungs were affected in every one of these rabbits, the disease being slight in 20 and of moderate severity in 2. The kidneys of 4 rabbits contained a minute tubercle or two. A popliteal gland of one rabbit contained a caseous tubercle from which a eugonic culture was isolated, and the omentum of another contained several gritty tubercles.

From one of the 18 viruses (No. 124), in addition to the strain isolated from tuberculous cervical glands, a culture of tubercle bacilli was obtained from another tuberculous focus, an intermuscular abscess. This latter strain, while identical with the cervical gland strain in cultural characteristics, differed from it and other standard human strains in virulence. Details of the experiments with this strain are given in the next section.

(3) *Atypical Strains.*

In my first series of cases of glandular tuberculosis all the cultures isolated could be readily classified either as standard human tubercle bacilli or as standard bovine tubercle bacilli. In the present series, on the other hand, three cases have yielded cultures which do not correspond exactly either to the human or to the bovine type of tubercle bacillus. Two of these three atypical cultures were obtained from cervical glands, while the third, referred to above, was derived from an intermuscular abscess in a patient also suffering from tuberculosis of the cervical glands.

A detailed account of the experimental results with each of the three strains follows.

CASE 129.—Female, aged 51 years, with recurrent tuberculous cervical glands. The woman had had glands removed from the neck several times during the last 20 years. The glands sent for investigation were from the submaxillary region. Two glands the size of peas, containing caseous substance, and two normal to the naked eye were emulsified and inoculated into two guinea-pigs. No tubercle bacilli were found in the emulsion on microscopical examination. One of the guinea-pigs was killed 33 days after inoculation, and showed slight general tuberculosis. The other, killed 206 days after inoculation, showed enlargement and fibrosis of lymphatic glands, two grey tubercles in the spleen, chronic fibroid tuberculosis of a testis and epididymis, and no disease elsewhere. A culture isolated from the first guinea-pig produced on the differential media the luxuriant growths of the human type of tubercle bacillus. A rabbit inoculated subcutaneously with 15 mgm. of the culture and killed 144 days later showed a local lesion only. Three guinea-pigs were inoculated subcutaneously, each with 0·1 mgm. of the culture. One died prematurely in 68 days, and showed slight general tuberculosis. Another died in 130 days of chronic general tuberculosis of mild type, the lesions in the organs and the glands showing little or no necrosis or caseation. The third guinea-pig was killed 132 days after inoculation, and was found to have slight retrogressive tuberculosis, the abdominal and thoracic glands were slightly enlarged and fibrotic, the spleen contained a calcareous tubercle, and there were a few grey tubercles in the liver.

The results of the inoculation of guinea-pigs with original material and culture indicated that the virus was of lower virulence than standard human viruses.

CASE 124.—Female, aged 13 years, with cervical adenitis and an abscess in the muscles of the thigh. The patient was admitted to hospital in June, 1915, suffering from enlarged softened glands and sinuses in the neck. There was also an extensive abscess in front of the left hip-joint, which developed subsequent to the adenitis and before her admission to hospital. This abscess was intermuscular; it was not connected with the joint and there was no evidence of true hip disease. The thigh abscess and the neck abscesses were treated by aspiration. The girl was discharged in November, 1915, when there was no evidence of active tubercle. The thigh abscess had been successfully aspirated and no signs of it remained. The sinuses in the neck were all healed and there were no active glands.

Investigation of material from the neck.—Pus from a sinus and a cervical gland caused typical tuberculosis in guinea-pigs and yielded cultures with the cultural characteristics of the human type of tubercle bacillus. One of the strains exhibited slight virulence for the rabbit.

Investigation of material from the thigh abscess.—No tubercle bacilli were found in a smear preparation of the pus of this abscess, but direct cultures were obtained, about a dozen colonies of tubercle bacilli appearing on each of three egg tubes. Two guinea-pigs inoculated intraperitoneally with the pus increased in weight, and when killed 262 days after inoculation showed very slight retrogressive tuberculosis. There was no omental or peritoneal tuberculosis; the inguinal and iliac glands were slightly enlarged and fibrotic, and in one guinea-pig there was retrogressive tuberculosis of an epididymis.

The culture isolated directly from the pus grew on serum and glycerine media with the characteristic luxuriance of the human type of tubercle bacillus. A rabbit inoculated subcutaneously with 20 mgm. of the culture developed a local lesion only. Three guinea-pigs were inoculated subcutaneously, each with 0·1 mgm. of the culture. One died in 168 days, and showed chronic general tuberculosis of fibroid type. The other two were killed 216 days after inoculation. In one tuberculosis was confined to the glands adjacent to the site of inoculation. In the other there were, in addition to local tuberculosis, scattered grey tubercles in the liver and one tubercle in the spleen.

The experiments on the guinea-pig with original material and culture demonstrated conclusively that the tubercle bacilli from the thigh abscess were of definitely lower virulence than standard human tubercle bacilli.

CASE 116.—Male, age 11 years, with tuberculosis of cervical glands. Material from this patient was received on two occasions. The first material was a dressing taken from a sinus in the neck on Feb. 19th, 1915. The second was pus aspirated on March 5th, 1915, from a cervical gland abscess. Three guinea-pigs were inoculated, two with sinus pus and one with aspirated pus. Typical, though not severe, general tuberculosis was produced in all three guinea-pigs. Two strains of culture were isolated, one through the guinea-pig from the sinus pus, the other directly from the aspirated pus. The cultural characteristics of the two strains were identical. On serum and glycerine serum they produced good growths, with yellow pigment. On glycerine agar, after a month or six weeks, there were thin dull-grey layers composed of microscopic colonies; on further incubation numerous whitish warty colonies appeared, some of which attained the size of millet seeds. On glycerine-potato thin, finely granular grey layers were produced, in which raised colonies of diverse form subsequently developed. No growth was obtained on glucose or glycerine broth. The cultural characteristics of both strains were unaltered

by subculture on glycerine serum (12 and 14 subcultures). Three rabbits were inoculated subcutaneously, two with 10 mgm. of the direct strain and one with 30 mgm. of the guinea-pig strain. They were killed 99 to 110 days later and showed cystic caseous lesions and one or two small tubercles in the lungs; in each of two rabbits the scapular glands were also slightly tuberculous. A culture recovered from one of the rabbits was identical with the original culture and proved of low virulence for two rabbits inoculated subcutaneously.

Summary of characteristics of virus.—Cultures eugonic on (bovine) serum and glycerine serum, dysgonic on glycerine agar, potato, and broth. Virulence for guinea-pigs and rabbits that of the human type of tubercle bacillus.

Of the three strains, the properties of which are described above, two were identical in cultural characteristics with the human type of tubercle bacillus, but they differed from standard human strains in their relatively low virulence for the guinea-pig. These two strains, therefore, exhibit the attenuation of virulence which has hitherto appeared peculiar to the majority of lupus strains, and are the only such strains which have so far been obtained in this country from human tuberculous lesions other than those of lupus. The third strain had the virulence of standard human tubercle bacilli, but did not correspond exactly either to the human or to the bovine type of tubercle bacillus in cultural characteristics. Strains identical in every respect with this strain have recently been found in the sputum of phthisical persons and in cases of human bone and joint tuberculosis[1, 2, 3].

II. *Statistical Data.*

In my first series of cases cultures of tubercle bacilli were obtained from 71 persons suffering from glandular tuberculosis. Of these 71 cases, 68 were believed to be primary in the cervical glands; 1 was a case of cervical gland tuberculosis, probably secondary to pulmonary tuberculosis; and 2 were cases of axillary gland tuberculosis. In the present series 35 cases have yielded cultures: of these, 34 were cases of primary cervical gland tuberculosis, and 1 was a case of axillary gland tuberculosis. There are in all, therefore, 102 cases of primary cervical gland tuberculosis upon which to base statistics as to the relative frequency of different types of tubercle bacilli in this form of human tuberculosis.

TABLE II.—*Clinical Particulars of Each Case and Bacteriological Results.*

No. of case.	Date of receipt of material.	Patient's place of residence.	Patient's sex and age in years.	Description of original material.*	Classification of cultures isolated.
112	9/1/15	Newcastle.	F., 7	Pus and caseous débris.	Human.
114	9/1/15	Cambridge.	M., 5	Glands containing caseo-calcareous nodules.	Bovine.
116	19/1/15	Exeter.	M., 11	(*a*) Dressing from neck sinus. (*b*) Pus from neck abscess.	Atypical.
117	19/1/15	Cambridge.	F., 21	Large caseous and softened glands.	Human.
118	26/4/15	Liverpool.	M., 7	Fibro-caseous glands.	Bovine.
119	3/5/15	Orkney.	M., 10½	Pus (no T.B.).	Human.
120	6/5/15	Liverpool.	M., 7	Caseous glands.	,,
121	10/5/15	,,	F., 50	,,	,,
122	17/5/15	Brynmawr.	M., 7½	Pus (aspirated).	Bovine.
123	14/5/15	Prendre, Meath.	M., 2⅞	,,	Human.
124	29/6/15	Nantbyr.	F., 13	(*a*) Pus from neck. (*b*) ,, thigh.	Atypical.
125	28/7/15	Liverpool.	F., 17	Caseous glands.	Human.
126	31/7/15	,,	F., 19	Calc. caseous gland.	,,
128	19/8/15	,,	M. (adult)	Fibroid hyperplasic glands.	,,
129	28/8/15	,,	F., 51	Caseous glands.	Atypical.
130	6/9/15	,,	M., 14	,,	Human.
131	13/9/15	,,	F., 19	,,	,,
133	6/10/15	Leicester.	F., 8	,,	Bovine.
134	9/10/15	,,	F., 18	,,	Human.
136	6/11/15	,,	M., 16	,,	,,
137	4/12/15	,,	F., 15	Hyperplasic glands.	,,
139	9/12/15	,,	? sex, 9	Caseous glands.	Bovine.
143	11/2/16	Alton.	F., 13	Pus.	,,
146	28/2/16	Manchester.	M., 1⅝	Caseous glands.	,,
148	6/3/16	Midhurst.	F., 15	Pus.	,,
149	7/3/16	Manchester.	M., 8	Caseous (axillary) glands.	Human.
150	13/3/16	,,	F., 11	Caseous glands.	Bovine.
151	25/3/16	,,	F., 5	Caseo-calcareous glands.	,,
153	29/4/16	Alton.	F., 17	Pus.	,,
154	19/4/16	Manchester.	F., 13	Caseous glands.	Human.
155	22/4/16	,,	M., 9	,,	,,
156	24/4/16	,,	M., 8	,,	Bovine.
157	1/5/16	,,	M., 4½	,,	,,
158	13/5/16	,,	F., 4	Caseous-softened glands.	,,
159	17/5/16	,,	F., 6½	Caseo-purulent glands.	,,

* Except where otherwise stated the material was taken from glands of the neck.

Table III. gives the proportion of the different types of tubercle bacilli found at various age-periods in this series of 102 cases.

TABLE III.

Age-periods.	Number of cases.	Number infected with—			Percentage bovine.
		Human T.B.	Bovine T.B.	Atypical T.B.	
Under 5 years	14	2	12	—	85·7
5–10 years	29	10	19	—	65·5
10–15 years	20	12*	7	1	35·0
15–20 years	18	12	6	—	33·3
20 years and upwards ...	21	16	4	1	19·0
Totals	102	52	48	2	47·0

* An attenuated "human" culture was obtained from a thigh abscess of one of these cases.

The figures show that in childhood cervical gland tuberculosis is caused more frequently by the bovine than by the human type of tubercle bacillus, nearly three-quarters (72·1 per cent.) of the cases in children under 10 years of age having yielded bovine tubercle bacilli. In persons over 10 years of age infection of human origin is more common, bovine infection accounting for about a third of the cases in the 10–20 years age-period and for rather less than a fifth of the cases in persons over 20 years of age.

The material used in my investigation of cervical gland tuberculosis has been derived mainly from cities and towns in England and Scotland, and, while the cases from the different localities are too few for comparative statistical purposes, it is noteworthy that a proportion of the cases from each centre of population has yielded tubercle bacilli of bovine type. If the figures for the whole of England are compared with the combined figures for Scotland, it is found that the proportion of bovine infections in children under 10 years of age is about the same for the two countries (in my first series the English percentage figure was lower than the Scotch). In persons over 10 years, on the other hand, the proportion of cases in which the infection was "bovine" is much higher in the Scotch than in the English series. The Scotch data are, however, too scanty to form a basis for inference. The figures for the two countries are set out in Table IV.

TABLE IV.

—	Under 10 years.				Over 10 years.			
	No. of cases.	Human	Bovine.	Percentage bovine.	No. of cases.	Human	Bovine.	Percentage bovine.
Scotland...	11	3	8	72·7	6	2	4	66·6
England ...	30	8	22	73·3	51	39*	12	23·5

* Including 2 cases which yielded atypical cultures.

Of the 4 cases of cervical gland tuberculosis not accounted for in Table IV. 2 came from Wales, 1 from Ireland, and 1 from Orkney. Bovine tubercle bacilli were obtained from 1 (Welsh) case, human tubercle bacilli from the other three. Three cases of axillary gland tuberculosis yielded one "bovine" strain and two "human" strains.

References.—1. Investigations of Strains of Tubercle Bacilli Derived from Sputum. THE LANCET, April 1st, 1916, p. 721. 2 and 3. Investigations of Human Bone and Joint Tuberculosis, Journal of Pathology and Bacteriology, vol. xxi., p. 54, and Journal of Hygiene, vol. xv., No. 2, Jan. 14th, 1916, p. 239. For references to previous work on cervical gland tuberculosis, see THE LANCET, June 19th, 1915, p. 1275.

THE King has appointed the following to the Order of the Hospital of St. John of Jerusalem in England:—Knights of Grace: Colonel Eustace Augustus Burnside, A.M.S., and Surgeon-General Francis John Jencken.

NOTES ON 73 CASES OF CEREBRO-SPINAL FEVER.

BY SHEFFIELD NEAVE, M.R.C.S., M.R.C.P. LOND.,
TEMPORARY CAPTAIN, R.A.M.C.

THESE cases included all those occurring in East Suffolk, both civil and military, during the epidemic period of 1915–16, from Nov. 19th to August 14th. Except two, they all occurred within a radius of 20 miles in towns, barracks, and camps, as opposed to the country, and these were in small cottages where air-space per head was singularly deficient. None occurred in private houses of any size. They were treated at four centres conveniently situated for the areas connected with them. The average mortality was 44·2; average age 17·2 years: 8 cases under 5 years, 10·95 per cent., 57 cases between 5 and 25, 78·1 per cent., 8 cases over 25, 10·95 per cent. Maximum age, 56 years; minimum, 9 months.

Etiology.—There was a very close parallel in the rise and fall of the number of cases during the season of the epidemic in this district to that published by the Local Government Board of the cases in the British Isles, excluding military cases. As each month progressed the two curves followed each other closely. Our knowledge of the seasonal nature of so many diseases, including cerebro-spinal fever, is in a very unsatisfactory state, and the inclination of so many to be satisfied with the statement that in summer it is the higher temperature and in winter the lower temperature that accounts for it, does not tend towards further investigation of what is now an important mystery. Plants have their season, being, no doubt, adapted by selection, but it is difficult to see the connexion between the season and micro-organisms in the same way.

In this case the weather was undoubtedly different in different parts of the country and the *post hoc* cannot be considered proved as a *propter hoc*. The fact that colds are more prevalent in winter and that meningococcus specially affects the naso-pharynx does not give an adequate explanation of this correspondence of cases. Very few cases begin with catarrh.

An exception to the above parallel was that the epidemic here closed with a number of mild cases, finishing in the middle of August with an outbreak of 19 cases in 26 days, as described in THE LANCET of Dec. 30th last by Fleet-Surgeon T. D. Halahan. This, it might be argued, was caused by the hotter weather increasing the activity of the organism as is stated in respect of typhoid and diphtheria with their autumnal season, but surely this would militate against the winter theory.

Except in two instances, only one case came from the same house, notwithstanding that there was overcrowding in several instances, but this did not hold good in the case of large dormitories. From one small tenement three small children of 6, 4, and 3 years of age died of a fulminating form of the disease, only living a few hours after onset. From another similar dwelling a boy died within seven days, while his sister had a slight attack.

Weather, fatigue, and exposure do not seem to be important factors in the etiology of this disease.

A large Government training establishment in this district gave great opportunity for studying the etiology of the disease if time had permitted. Cases seem to crop up throughout the year at intervals of about two months or less with an exacerbation at the end of the epidemic season. The general character of the disease was very mild here and the death-rate very low compared to the other centres of infection, and considerably lowered the mortality of the whole. In July and August, when the epidemic had abated in the country generally, a number of cases occurred of a character so mild and transient that 7 out of the last 10 were only clinically diagnosable for a few days and no bacteriological confirmation was possible and yet out of the remaining 3 there were 2 deaths. During this outbreak a bacteriologist was specially sent to take charge.

The sanitary conditions are excellent, both with regard to ventilation and all other matters. It would appear that the organism increases in virulence when it has the opportunity of passing from naso-pharynx to naso-pharynx among a collection of young people, which is, according to present lights, the most favourable soil for its growth, and that this is even more a factor than the accessory point of ventilation of buildings, the importance of which is demonstrated by the fact that the disease is seldom acquired in the trenches. It would seem, therefore, that if a number of young naso-pharynges are collected in any building, however well ventilated, the organism will succeed in transferring itself and increasing in virulence. This also seems to be much enhanced where the said young population is a floating one, a large proportion going and others taking their place, and so giving a greater variety and quantity of soil in which to grow.

In the matter of incubation period this outbreak was also instructive. Many of the cases had just returned from leave or were newcomers, and in analysing the facts as to where they had been on leave it was shown that the localities were distributed in many parts, and there was nothing to show infection while away. Thus there were 2 cases which fell ill one day after return, 3 two days, and 3 seven days. This would tend to show that incubation may in some cases be only one day before clinical symptoms appear.

Symptoms.—The most prominent details of the disease vary much in different cases. At each centre of the disease in the above list it was observed that there was often a similarity in the most pronounced symptoms, and when a number of cases were admitted near together in time the prominent details of the disease were much alike, as if the particular strain of organism had a special effect.

In the same way it may be observed that the intensity of the disease was very different at different centres, as shown by the highest and lowest death-rates being 77·7 and 14·8 per cent. Owing to the impossibility of doing routine agglutinations, it was not possible to ascertain how far the above facts could be explained by the various strains shown to exist.

Incontinence of urine and fæces was common, usually following on retention of urine. Meningococcus was twice found as a cause of the accompanying cystitis, but when the prevailing organism was sought for late in the bladder trouble it was not found, but in its place usually coli or a staphylococcus, and these were very obstinate and difficult to eradicate. In 3 cases there was severe pain in both sides of the chest and in 2 in the abdomen, as if corresponding to the dorsal nerves from definite vertebræ, as in herpes and Pott's disease. In another case there was severe pain in the arms and in another at the anus, but none lasted more than three days.

A number had a difficulty in swallowing, which necessitated nasal feeding, while others had an obstruction to respiration with strepor, which obtained during sleep and woke the patient up, when the obstruction desisted, but was immediately repeated on again falling asleep. This occurred in bad cases.

There was one case of pneumococcal pneumonia accompanying the disease, as mentioned by Osler as being common in a New York epidemic.

Dilatation of the pupil was not frequent, and it usually reacted to light. Only 2 cases of photophobia occurred, where there was no conjunctivitis as well. The specific coccus was found in one case of conjunctivitis. The patient was seldom peevish, but could usually be roused from coma to make a reply. He seldom, when recovered, recollected the awful discomfort he appeared to be suffering.

One case—a child of 10—was seized late in a very typical attack with total flaccid paralysis of both legs, resembling that of anterior poliomyelitis, which has remained for many weeks. Incontinence of urine and fæces has also remained. She is still very slowly improving. Poliomyelitis may have here followed on the meningococcal attack.

Two cases of hæmaturia occurred. Only one case of rash attributable to serum occurred and only a small percentage of cases had a rash at all. No case with hæmorrhagic patches recovered.

Fulminating and severe sthenic cases ending in early death numbered 18, exclusive of 2 which aborted. Chronic cases were 6 in number and mild cases 27. The remaining 22 were of an intermediate type not coming under these heads.

Diagnosis.—The facies of a fulminating or severe case at onset was almost diagnostic, as well as a peculiar smell. In testing for Kernig's sign pain was frequently elicited at the hip-joint and not at the knee-joint.

At quite the commencement of the disease a useful sign was found to be the inability to put the chin on the chest, and this sign was also often found to be the last to be lost of the head and neck signs, though stiffness of the lower portion of the spine and Kernig's sign usually had a longer duration.

Agglutination.—No agglutinating sera were available till the middle of the epidemic, and little could be done in this way. At first it was attempted to keep the coccus alive until time could be made to organise the process, but many failures resulted after long subcultivation. Later emulsions were made and these were kept until July, when the tests were done.

Twenty-two cultivations from cases were tested and gave the following results:—

No. 1 serum agglutinations ...	3 emulsions tested	gave a positive result.			
,, 2 ,, ,, ...	4	,,	,,		
,, 3 ,, ,, ...	14	,,	,,		
,, 4 ,, ,, ...	1	,,	,,		

and two emulsions were not agglutinated by any of the four sera. In four of the above cases No. 1 serum agglutinated the same emulsion as No. 3 serum, but to a much lower dilution.

Treatment.—This presents the gravest difficulties. The variability of the disease in intensity prevents one distinguishing between *propter hoc* and *post hoc*. Thus, as an epidemic proceeds, the disease is reduced in virulence, and a practitioner having changed his remedies used at first when there was a high death rate, attributes the lower death-rate to this change. Again, an epidemic in one place may take a very mild form, although only a few miles from another where the death-rate is high, as instanced above, and the practitioner is apt to think that it is due to his remedies—e.g., a different serum from that of his neighbour.

The cases under review were treated: 1. By lumbar puncture until the amount of fluid coming away was reduced to 20 c.c or lower. It was usually done several days running at the commencement of the disease, and later every other day, till the above result was obtained or the patient much improved. There is no doubt as to the benefit obtained by this treatment.

2. By the intrathecal injection of 0·5 per cent. carbolic acid in normal saline, which was allowed to run out again, thereby constituting a form of lavage. No improvement could be definitely traced to this treatment; but where there was pus a great deal was got rid of in this way, and it was thought therefore to be beneficial in those cases.

3. By the intrathecal injection of serum. In a few cases at first Burroughs and Wellcome's and Mulford's brands were used, and at Shotley the serum from the Pasteur Institute, but by far the larger number were treated with the serum from the Lister Institute. Both the latter were made from Gordon's strains. This serum injection seemed to have no effect whatever.[1]

4. Soamin and vaccines were used in a few cases; neither appeared to do any harm or good.

5. Intramine was used in 2 cases with unsatisfactory results.

6. Tartrate of antimony was exhibited in 9 cases. In 6 cases it was injected intravenously. In one of these the patient had had a period of three weeks' daily remitting temperature characteristic of septicæmia after the main symptoms of the nervous system had subsided. Within 48 hours of a single injection the temperature became normal and remained so with an uninterrupted recovery.[2] The second case was similar but the remitting temperature had not continued so long. It was also given in 2 fulminating cases which aborted a few hours afterwards in a remarkable way. In 2 other cases it appeared to have no effect on the course of the disease, both patients dying, although in one of them the temperature was always lowered after injection.

It is hoped that this remedy thus applied will prove useful at any rate in septicæmic conditions both in this disease and generally. In 4 cases, including one of the unsuccessful intravenous cases, a very small dose was given intrathecally, but there was no evidence of its having any effect. The spinal fluid was tested two days after the injection for antimony without any being found, showing it had already been excreted. This was done by Miss Gladys Cobbold, of Girton College, who kindly consented to give her time for the purpose.

[1] Probably due to the serum not having been made with Nos. 3 and 4 types.

[2] First dose 1·5 c.c. of a 2 per cent. solution, to be increased gradually to 6 c.c. if necessary in later doses.

Procedure.

Patients were removed to one of the hospitals either before or after first lumbar puncture, and it is desired here to thank those in charge of them for their permission and assistance in studying these cases. The puncture fluid was carried in a case in the bonnet of the motor, which kept it at from 30° to 35° C. until the laboratory was reached. One or two nasgar tubes were inoculated at the same time when the fluid was collected and carried in the same way.

Lumbar puncture.—The points observed in respect of this operation, which was done not less than 153 times, are as follows. 1. It is more important to work by the sense of touch than by the eye. The following was the method adopted: Two fingers of the left hand are laid on the ilium and two above it on the side of the patient; this puts the thumb in a good position to be placed between the spinous processes of the correct two vertebræ, and so gives a sense of position and direction not otherwise obtainable. The thumb then draws the skin upwards to render it more tightly stretched than is normal, the object being to prevent the skin slipping away from the point chosen for puncture by the rather blunt needle which is best to use, and so causing it to enter elsewhere than intended. If this operation is thus performed it does not matter on which side the patient lies. 2. It is quite safe to puncture in all three of the second, third, and fourth lumbar spaces. 3. In some cases no fluid may exist in the theca that can be drawn off, owing probably to inspissation, more especially after frequent puncture in severe cases. Here it is useful to inject normal saline and let that return through the same needle or through another in a space below. A turbid fluid is thereby obtained consisting of washings of inspissated pus, which are useful for cultivation and microscopic investigation, besides getting rid of objectionable material. This process is also useful in the cadaver.

The very slow injection of fluids by gravity—e.g., 1 c.c. per minute (Horder)—appeared quite unnecessary. It seems to be safe to inject slowly with a syringe while watching respiration and desisting if a change in rapidity makes its appearance. This change is usually a diminution. When a given amount has been injected in this way, and no effect has been noticed on the respiration, and has been allowed to run out again, it is safe to inject a similar amount a second time rather faster. On one occasion only 15 c.c. of cerebro-spinal fluid came away, and the injection of only 10 c.c. of saline caused a slowing of respiration. This again occurred exactly at the same point every time saline was injected again, after being allowed to run out, showing pressure probably on the respiratory centre in a case where the foramen of Magendie was obstructed.

No bad results were obtained from lumbar puncture or injection either immediately or later, but in the case of what turned out to be brain tumour and another with pneumonia there were difficulties in consequence of the general anæsthetic.

Cerebro-spinal fluid.—The most common contamination was due to staphylococcus albus, although the skin was carefully prepared with spirit or ether and iodine before puncture. This organism gave a good deal of trouble.

The fluid was searched for meningococcus by examining a film of the deposit stained by Gram's method, and where no growth on nasgar was obtained this was considered sufficient where clinical symptoms were undoubted.

The meningococcus was obtained by cultivation in 36 out of 55 cases, where it was seen in the purulent sediment of the fluid. In one case no organism was seen in the fluid, but a cultivation was successful.

In one case no organism was found in the first place, but a cultivation was obtained from the fluid during a relapse a month later.

In 10 cases the organism was not found, and here the probabilities of a positive diagnosis lay in the clinical tests for meningitis generally, the cytology of the fluid and the clinical symptoms.

In addition to the above there were 8 similar cases where the fluid was not examined in this laboratory, the bacteriologist at Shotley on his arrival taking them in hand.

In one case, while the fluid was clear and no organism was found in it, it was found in a throat-swab.

An excess of lymphocytes was several times found in a clear fluid that later became purulent.

It was remarkable how few cocci were found as a rule in a smear, and their number had no relation to the state of the pus cells whether degenerated or in good preservation. The pus often seemed to contain nothing but mononuclear or degenerated cells, but after a long search a large area of polymorphonuclear cells was nearly always eventually found, showing that the mixture of cells was not on regular lines.

In one case the meningococcus was found alive in the fluid after it had been in the incubator for 23 days, but as a rule the organism was very difficult to keep alive on any media more than half that time. It was found that the fluid drawn from the cisterna magna after death for diagnosis gave better information than that from the lumbar region both in the case of cerebro-spinal fever and tubercular meningitis.

The amount of cerebro-spinal fluid in a normal adult is variously stated at 60 c.c. and 200 c.c., but on one occasion a surplus of 75 c.c. was taken from a baby of 9 months with normal measurement of the head, and this without undue depression of the fontanelle. No harm ever resulted from allowing the flow to continue until normal pressure was reached.

In 16 positive and 2 doubtful cases the fluid remained clear; all these were mild cases which recovered.

Contacts.—In taking swabs it was found best to abstain from using a tongue depressor, and that if the patient was induced to continue saying "ah," it was easy to introduce West's swab without discomfort to him.

Before inoculating the plates it was found necessary to wipe the glass tube carefully, so as to remove any secretion and to prevent any organisms from the mouth being sown and any inhibition of growth by saliva. Another method was to withdraw the wire upwards for inoculation. The plates received four or five drops of fresh serum and the swab was placed in these when being applied to the surface.

It was remarked that where the contacts had been living together the same flora appeared to a great extent, also that there are usually not more than two kinds of organism on the plate showing the selective nature of the part.

It was only possible for want of time to carry out the 23° incubator and sugar tests. The latter gave trouble. The most satisfactory tests were obtained by the additions of serum to the media. Positive cases varied very much in the length of time necessary for producing acid—viz., one to six days. Growth at 23° was delayed in some cases till the fifth day.

Owing to the absence of a systematic agglutinating test the percentage of positives was doubtless too high.

No contacts were known to catch the disease. Duration of the organism in a contact was usually less than 17 days, but one lasted for 11 weeks. The duration appeared to be independent of treatment. Out of 14 swabs taken at the commencement of an attack 3 were found positive only.

The following table shows the number of positive contacts as they occurred in each 100 swabbed, and the dates of same:—

	+	−
First 100 November-March	10	 90
Second 100 March-April	8	 92
Third 100 April-May	8	 92
Fourth 100 May	15	 85
Last 105 June-August	5	 98
	46	457

MEDICO PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next general meeting of the association will be held on Thursday, Feb. 15th, at 3 P.M., at 11, Chandos-street, Cavendish-square, London, W., when a paper will be read, entitled "Dreams and their Interpretation, with reference to Freudism," by Dr. Robert Armstrong-Jones.

LITERARY INTELLIGENCE.—For the use of medical men engaged in war work, Messrs. J. and A. Churchill have published the following during the week: A sixteenth edition of "Minor Surgery and Bandaging," by Mr. H. Morriston Davies, and a second edition of "Sanitation in War," by Major P. S. Lelean, R.A.M.C. New illustrations have been inserted in this volume and the whole of the text has been revised.

ON THE TREATMENT OF SCABIES AND SOME OTHER COMMON SKIN AFFECTIONS IN SOLDIERS.

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MEDICAL men in charge of patients in military hospitals, convalescent homes, and camps are often called upon to diagnose and treat certain diseases of the skin. Contrary to what one might expect as a result of the conditions under which a soldier lives on active service, the list of these complaints is not a long one. Eczema, in the production of which local irritants are known to be a prominent factor, is by no means common among soldiers, in spite of infrequent baths and change of clothing. On the contrary, many men who in civil life have been victims of eczema, have lost that complaint while serving in the Army, perhaps as the result of a better state of general health. Neither does one see, as again one might expect to see among those who have been at the front, lichen planus, an affection which in civil life is often caused by stress or nervous worry. The really frequent skin affections of soldiers are comprised among the more common contagious skin diseases. Pediculosis, scabies, impetigo contagiosa are probably the most prevalent, then certain forms of ringworm. If we add to these the eruptions of secondary syphilis and psoriasis vulgaris, these half-dozen affections are those with which a military doctor is most likely to meet.

Pediculosis is mainly a complaint of the trenches, and, as "the louse problem of the western front," its management has been fully discussed in the medical journals. Syphilis is a disease which at once passes out of the hands of the local medical officer to be treated in special hospitals for venereal diseases.

Scabies, impetigo contagiosa, and to a less extent ringworm, though in a sense trivial complaints, are nevertheless responsible for the temporary invaliding of hundreds, perhaps thousands, of otherwise able-bodied men. Measures for the treatment of these diseases are therefore worthy of attention. Psoriasis also invalids many otherwise healthy men and sends them to hospital either because of the extent and consequent discomfort of the eruption, or because the eruption is looked upon with suspicion by the man's companions.

Scabies.

It is a very good rule, when a soldier (as, indeed, a civilian), of whatever rank, complains of itching, to think first of scabies, and to exclude that disease before giving consideration to any other. Itching at night is particularly suggestive of scabies.

One looks between the fingers and about the wrists for "burrows," and on the buttocks, and particularly on the penis, for red raised ridges, the result of burrows which have become inflamed by scratching or infection.

On the fingers and wrists the burrow is seen as a narrow wavy line, generally black from included dirt, and $\frac{1}{16}$ inch to $\frac{1}{4}$ inch long. Sometimes there is near, but not actually at one end of, the burrow a clear pinhead-sized vesicle—the pearly vesicle—over the roof of which the burrow passes. When examined with a lens the acarus can be seen at one extremity of the burrow as a whitish speck like a minute smooth flat pebble imbedded in the skin. When seen it can be easily removed by touching it with the point of a darning needle and examined under the microscope in a little liquor potassæ, and the diagnosis is certain once for all. This is the only sure way of finding the acarus; to grope for it blindly in the burrow or the pearly vesicle is useless.

As has been stated, burrows sometimes become inflamed, and an "inflamed burrow" forms a red, raised, ridge-like papule, on the crest of which the burrow can be seen on close inspection. The elongated shape of the papule is alone suggestive of scabies, and an "inflamed burrow" on the penis is a sure diagnostic sign of scabies in a man.

But scabies is often complicated by (*a*) impetigo contagiosa or by (*b*) eczema, and in either case it may be then less easy to find a typical burrow and an acarus.

When complicated by impetigo, the hands and feet particularly are the seat of vesicles and bullæ with clear or turbid contents, together with crusts, erosions, and inflamed burrows; and there may be crusted infiltrated nodules (ecthyma) on the buttocks, and often crusts and erosions on other parts, sometimes here and there a small furuncle.

When eczema complicates scabies there are red, rough, eczematoid areas, sometimes dry and sometimes weeping, on the hands, arms, thighs, and trunk, masking often the burrows of the original complaint. In many instances the eczema is caused by too prolonged use of sulphur applications, but it may also result from constant scratching in scabies of long standing.

In respect to the contagion of scabies, it should be remembered that it is usually in men a venereal disease, but that it may also be conveyed to others by means of things which are handled, such as books, playing-cards, dominoes, and utensils of all sorts.

Treatment of scabies.—It was said by Hebra 50 years ago that "there is, perhaps, scarcely any other curable disease for which so many and various remedies have been proposed as for scabies. Those enumerated in medical works amount to hundreds." Of the treatments which have survived there is none, perhaps, so universally employed to-day as that recommended by Hebra of baths, soap, and sulphur ointment The method of "sulphur fumigations," recently recommended by Major John Bruce and Captain Stanley Hodgson, dates back from the seventeenth century, and it is worthy of remark that Hebra said of this method after a trial in the General Hospital of Vienna, that "the results obtained were not such as to lead to the further adoption of the method, for it was found to set up artificial eczematous eruptions, which so greatly prolonged the treatment that its average duration exceeded four weeks."

The all-important points in dealing with cases of scabies are (1) to make sure of the diagnosis, if possible by finding an acarus; (2) to then carry out a very thorough treatment for a strictly limited period. Doubt in diagnosis often leads to ineffectual treatment; treatment ineffectual but too long-continued leads to eczema or sulphur dermatitis and still further confuses the diagnosis.

The simplest and most efficacious treatment is as follows:—

(1) ℞	Saponis mollis	24 oz. (700 gm.)
(2) ℞	Ung. sulphuris	24 oz. (700 gm.)

S. The soap and ointment for three applications.

(1) A hot bath of half-an-hour's duration is taken on three consecutive days. During the bath the body and limbs, especially the hands and wrists and buttocks, are scrubbed with soft soap by a flesh brush.

(2) After each bath the patient himself rubs in the ointment and puts on an old sleeping suit, gloves, and socks and goes to bed, where he remains until it is time for the bath on the next day.

The baths and inunctions must on no account be continued beyond the three days. The patient gets up and dresses after the three days and usually requires no further treatment, but is kept under observation for another three days. If, as sometimes happens, some itching continues he is given the following lotion to mop on night and morning.

℞	Liq. picis carbonis	1 dr. (4 c.c.)
	Aq.	20 oz. (600 c.c.)

If the treatment has been thoroughly carried out the patient is cured and free from infection after the three baths and inunctions. If a case is not cured in this way, it is probably not scabies, but either a papular urticaria or chronic eczema. For the former affection a lotion of ordinary vinegar is often efficacious. For the eczema a zinc ointment as follows should be freely applied and all baths forbidden.

℞	Zinci oxidi	1 oz. (30 gm.)
	Pulv. amyli	1 oz. (30 gm.)
	Vaselin.	ad 10 oz. (300 gm.)

By this method of treating scabies, with one bath and a good supply of hot water, from 12 to 16 men can have treatment each day, or a complete cure for 24 to 32 men per week, and so on, in proportion to the number of baths available. Clothes may be disinfected, but in practice this is found to be unnecessary. Brushing and airing of outside clothes and washing of underclothes suffice.

Impetigo Contagiosa.

It has been already remarked that impetigo may complicate scabies and that it then attacks particularly the hands, buttocks, and thighs. But it often occurs apart from scabies as single cases or in small epidemics.

Its usual situation is then the face, beard region and scalp, and the fingers. It is of common occurrence as a result of a visit to the barber or from using a public towel. It usually begins on the beard region as scattered isolated crusts, which quickly spread on to other parts of the face, about the ears, and sometimes on to the neck and scalp. It is often mistaken for sycosis or for eczema, but it is easily recognised by the appearance of "stuck on" amber-coloured crusts from the size of a split pea to that of a shilling. Each of these crusts represents the dried serum of a blister, but the drying takes place so quickly that the original blister is seldom seen, though on removing a crust with forceps there is revealed a raw weeping surface, which is the base of the blister. Frequently there is a phlyctenular whitlow on a finger or thumb around the root of the nail, and there may be crusted patches on the hands or forearms.

This eruption is often wrongly supposed to be of staphylococcal origin, but it is really due to a streptococcal infection. If untreated the infection spreads rapidly, especially in hot climates or warm weather. If effectively treated the eruption may be cured in a few days or a week, but if not rightly dealt with, sooner or later a secondary staphylococcic infection supervenes. The staphylococcus invades the hair follicles of the beard, eyebrows, eyelashes, and scalp, and a deep-seated, intractable, sometimes incurable, pustular dermatitis results. On the beard region this staphylococcal infection is known as *sycosis*, and on the eyelids as blepharitis, but the exactly similar condition on the scalp and eyebrows has no definite name, and is often wrongly called pustular eczema. It might be called sycosis capitis, or chronic impetigo.

Treatment of impetigo contagiosa.—The essential part of the treatment of impetigo is the complete removal of every scrap of crust in order that any antiseptic application may reach the site of the invading micro-organism.

The patient should be made to mop off the crusts with a wad of wool and hot water, and to continue to mop for half an hour or until every crust is removed. A lotion of 1 in 6000 hydrarg. perchlor. is then daubed on for a few minutes and a diluted white precipitate ointment applied (hydrarg. ammon. chlor. 10 gr. (0·6 gm.), vaseline 1 oz. (30 gm.)). The bathing and application of ointment is repeated several times daily and continued until no fresh crusts are formed. In this way the most extensive eruptions can be cured in a few days. Without the thorough removal of crusts the ointment fails to reach all the infected parts and the eruption continues. With wrong or inefficient treatment a secondary staphylococcal infection supervenes and an intractable chronic impetigo or "sycosis" results. If dealt with early a "sycosis" may often be quickly cured by staphylococcal vaccines, but where long established vaccines fail, and other treatments, including X rays, may be tried in vain until the man is finally discharged from the Army as incurable.

Ringworm.

Ringworm is a third contagious skin complaint which may incapacitate soldiers, though it is less generally prevalent than either scabies or impetigo.

It may occur on the beard region or on the forearms in the form of large disc-like inflammatory plaques with pustulating points as the result of infection from horses, and epidemics of "horse-ringworm" of this sort were at one time prevalent in certain cavalry camps, but have apparently now ceased to occur.

More general forms are ringworm of the groin (tinea cruris or Dhobie itch) and eczematoid ringworm of the extremities. Groin ringworm is perhaps more often met with among officers, and ringworm of the toes and feet particularly in hot climates or during warm weather. Ringworm of the groin and the interdigital ringworm may sometimes be associated in the same patient. Ringworm of the toes and feet most calls for attention because it is less generally known and recognised as such. In its mildest form it causes red, dry, or excoriated surfaces between the toes due to peeling off of the horny layers of the epidermis. The red surfaces are sharply margined from the normal skin by an overhanging fringe of epidermis and they generally extend on to the sole of the foot. In cold weather it often remains in this condition and causes comparatively little discomfort. In hot weather, and in tropical climates especially, the eruption may spread rapidly and extend over the foot and even up the leg to the knee in the form of blisters and excoriations, sometimes with œdema of the leg. Many such cases were seen invalided from Gallipoli.

One of two measures may be adopted in treating any of these forms of ringworm.

(1) The application of an ointment which we owe to Dr. Arthur Whitfield—viz.:

℞	Acid. benzoici	15 gr. (1 gm.)
	Acid. salicylici	15 gr. (1 gm.)
	Ol. coca-nucis	3 dr. (12 gm.)
	Vaselin.	ad 1 oz. (30 gm.)

In cases where there is vesication the inunction should be preceded by fomentation with hot water. Many cases quickly clear up with this treatment, but sometimes part of the eruption in the groin, or between the toes,

or on the soles remains obstinate, and for these cases a useful treatment is:—

(2) First thoroughly mop the affected parts with tinctura iodi; then rub on argent. nitratis 10 gr. (0·6 gm.), spirit. aetheris nitrosi 1 oz. (30 gm.). Repeat this treatment if necessary, and apply the benzoic acid ointment between whiles.

For the treatment of *psoriasis* in soldiers it is but waste of time to try internal remedies. They are generally disappointing, and, in any case, show no results for weeks. It is better to at once apply local remedies.

The following ointment is often successful in removing the eruption:—

℞ Hydrarg. ammon. chlor. ... ... 1 dr. (4 gm.)
Liq. picis carbonis... ... ... ½ oz. (15 c.c.)
Ung. paraffin. B.P. ... ... 6 oz. (180 gm.)

S. The ointment to be well rubbed in twice daily with a piece of flannel.

This ointment, which is made with a stiff basis—ung. paraffin.—is usually more effectual than when made with simple vaseline. If this ointment fails, ung. chrysarobini B.P. should be employed, with the usual precautions of avoiding the face, hands, and scalp, and relaxing the treatment if chrysarobin erythema appears at any part. The patient should be kept in bed when chrysarobin ointment is used.

The treatment of psoriasis will be usually slow, but for most of these complaints it may be said that with prompt and efficient treatment the period of hospitalisation will be reduced to a week or so, while inefficient treatment may prolong that period to many weeks or months, or lead even to eventual discharge of men from the Army with the complaint still uncured. This, then, is the excuse, if such be needed, for venturing to discuss these somewhat banal subjects.

Devonshire-place, W.

BLINDED SAILORS AND SOLDIERS:
REMARKS ON THE TRAINING AT ST. DUNSTAN'S.

BY ARNOLD LAWSON, F.R.C.S. ENG.,
OPHTHALMIC SURGEON AND LECTURER ON OPHTHALMIC SURGERY, MIDDLESEX HOSPITAL; OPHTHALMIC SURGEON TO ST. DUNSTAN'S HOSTEL.

THE fact that the great war rapidly developed largely into a trench warfare has caused head injuries to figure very prominently in the casualty lists. One of the after-consequences of many of these head injuries is partial or complete loss of sight, and as a result the war had not been many months in progress before a number of discharged blinded soldiers were thrown on to the nation's charity. As in many other matters the nation was not prepared for this state of things, and St. Dunstan's was the first, as it has now grown to be the final and complete, answer to the urgent cry for help from the sufferers. Everybody now knows that St. Dunstan's was initiated, put into being, and carried on to what it now is by the self-devotion and genius for organisation of Sir Arthur Pearson, who has given the whole of his marvellous energies, and incidentally has largely sacrificed his health, to perfecting a scheme for the training of blinded soldiers and sailors.

St. Dunstan's started just a short 22 months ago in a large house in the Bayswater-road. Thence in March, 1915, it moved to its present quarters in Regent's Park, where on the 15 acres of available land it now lodges about 180 men, and here the greater part of the training is carried out. But St. Dunstan's stands for much more than this. It now includes the Regent's Park College, recently made over by the generosity of the Baptist College Committee, with its possible accommodation for about 200 more men. In addition two large houses in Portland-place serve as accommodation for blinded officers, and two houses in Paddington are also being used to lodge some of the men for whom there is no available space at St. Dunstan's for the moment. Further, four convalescent homes (two at Brighton, one at Blackheath, and one at Torquay), with accommodation between them for 112 patients, serve a most useful purpose in providing the men with week-end and longer trips to rebuild their health. These homes have proved a very great boon, as numbers of the men suffer a great deal from headache and malaise long after their wounds have healed.

Moreover, the work at St. Dunstan's does not end with the training of the men, but purposes to settle them after training—i.e., to provide homes for them, to set them up in business, and to supervise them after settlement. Thus the "settlement" and "after-care" departments of St. Dunstan's have grown into a great and responsible undertaking, and the work is of necessity very rapidly increasing. It is a work which requires great organisation, and already has advanced to the stage of portioning the United Kingdom into districts, each with its own supervising secretary and branch establishment.

At the present moment there are 388 blinded soldiers and sailors on the books at St. Dunstan's. Of these, 280 are actually at St. Dunstan's or its attendant convalescent homes, whilst 108 are in hospital either waiting admission or sent into hospital as requiring medical treatment in some form.

For the purposes of admission a man is considered fit whose sight is so injured that he is incapable of leading an independent existence. There are many, therefore, who can distinguish light, though a large majority are absolutely blind. A difficulty has existed in regard to a certain number of cases which are partly or wholly functional—cases of bad "shell shock," as it is loosely called, for example. To sift and apportion the functional and organic elements in many of these cases is a matter of great difficulty, and to train a purely functional blindness as if it were an organic blindness may be the worst possible treatment. However, ways and means have generally been found to deal with these cases, and the convalescent homes have proved very valuable adjuncts in helping to the right decision.

The great factor in the success which has attended St. Dunstan's is the youth of most of the patients. It is far better to go blind young than to lose sight after middle age. The buoyancy of youth, its power of repair, mental as well as physical, and its inherent faculty of living in and for the present without undue inquiry into a remote future, make it possible for blinded youth quickly to pick up the severed threads and start life again. Such elasticity is out of the reach of the aged, and consequently the training of the youthful blind is far easier and far more gratifying in its results than training applied to the old.

At St. Dunstan's the men are all taught to shun self-pity. Commiseration is avoided, and from the start the man is encouraged to accept his lot as an inconvenience and not as a disability. He has got to make the best of it, and the best is a very good one if it is learnt aright. A visit to St. Dunstan's at any time will speedily assure the stranger that this spirit is quickly and cheerfully accepted, for there is no cheerier place in London.

Another and equally important point in the training is the teaching of independence. The blind man instinctively becomes increasingly dependent on others if left to himself, and the greatest pains are taken at St. Dunstan's to show the men how to shift as far as possible for themselves. Various simple devices are adopted and after a very short stay the man will be found cheerily going about his own business without a thought of seeking outside help. A more subtle difficulty is the natural "suspicion" of a blind man. Everybody instinctively gauges the value of a word by watching the speaker, and the loss of this faculty of watching weighs very heavily on many blinded people. The feeling of distrust soon wears off at St. Dunstan's in the life of good fellowship amongst others similarly handicapped, aided by the inspiration afforded by the experiences of those who have lived at the hostel for some time.

The actual training of the men occupies a work day of four hours, two hours being given up daily to learning Braille and typewriting, and two hours to the learning of handicrafts or trade. The hours are not long, but the blind man has to visualise everything mentally, and has consequently to concentrate intensely upon all his work. Thus the blind man gets tired much more quickly than the sighted man even when "fit," and very many at St. Dunstan's are anything but "fit." Typing is quickly learnt, and if an "efficiency" test is passed the man on leaving the hostel is presented with a Remington typewriter. Braille presents many difficulties to the older and to the more uneducated men, as also to a good many of those who have had severe head injuries. I am in hopes that a simplified Braille may be devised to meet this need. For a selected few massage, poultry farming, and telephoning form very suitable occupations; but these are not for the majority, who are set to learn simpler things, such as mat-making, basket- and hamper-making, carpentering, or cobbling. Two of these rougher trades are usually learnt by each man. The average time occupied in

the training is from six to eight months, but illness often causes an extension of the period needed. In any case the man is kept until he is thoroughly well qualified to start life again on his own account. Up to the present time 150 men have been fully trained and settled.

To keep the men in good physical condition much care is taken. Early morning Swedish exercises in the open air in the summer and indoors in the winter, and rowing on the water of Regent's Park form very good aids in this direction, whilst a number of voluntary workers come to give the men good walking exercise each day.

The social side of the hostel is abundantly looked after. There is a very large social hall where some form of entertainment takes place nearly every evening, and, further there has recently been added a very large "quiet room," fitted with easy chairs, where the men can resort for a quiet smoke and rest. A chapel, too, has just been completed, and its services will undoubtedly prove of great comfort to the men.

The maintenance of general order and discipline sounds a formidable matter, but on the whole the difficulty has been less than anticipated. A great deal is done by appeals to the honour and good sense of the men themselves, the vast majority of whom realise the essential necessity of order and give offenders against the rules a very poor time. At the same time, it is very easy for one or two bad characters to upset thoroughly the whole place, and it has been found necessary in a few instances, and after due warnings, to get rid of the offender.

Harley-street, W.

Clinical Notes:
MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF INTESTINAL OBSTRUCTION BY THROMBOSIS OF MESENTERIC VEINS; OPERATION; RECOVERY.

BY S. C. GHOSE, M.R.C.S., L.R.C.P. LOND.,
HOUSE SURGEON, ROYAL ALBERT HOSPITAL, DEVONPORT.

THE following case may be deemed of sufficient interest to merit publication.

The patient, aged 54, a labourer's wife, habitually constipated, was suddenly seized with severe abdominal pain, referred to the right of the umbilicus, a pain which "doubled her up." The condition passed off, only to return soon after, followed by vomiting and arrest of the passage of flatus and fæces, which state continued till she was admitted into the hospital after three days. During that time she was treated outside for intestinal obstruction by Dr. T. N. Leah, as she refused early surgical treatment.

On admission the temperature was 97° F., the pulse-rate 80, and the respirations 26, and on the following morning they were 98·4° F., 116, and 28 respectively. The abdomen was slightly distended with gas, and vomiting was very frequent and fæcal-smelling. There was no visible peristalsis. Nothing was found per rectum or per vaginam. A soap enema, followed in three-quarters of an hour by a turpentine enema, was administered without result. The patient was prepared for operation and the stomach was washed out.

On the fourth day after the onset of illness a laparotomy was performed by Dr. Leah. About 12 inches of distended small gut with attached mesentery was found to be of a deep chocolate colour, just above a constriction ring, beyond which the gut was perfectly healthy. The attached mesentery was soft and œdematous and gave way on manipulation with some hæmorrhage. No band, adhesion, tumour, or ulcer was found to account for the constriction ring. No peristalsis was visible in the affected area. Some peritonitis was present. The attached mesenteric veins were found to be thrombosed. The affected area of the gut was resected, and end-to-end anastomosis was established by simple sutures, closing the abdominal wound in four layers, the whole operation taking about an hour.

The patient ten days after the operation was getting on well, although she had been troubled with vomiting, meteorism, and great thirst during the early part of the after-treatment. She left the hospital perfectly cured five weeks after the operation, and is doing light work at home.

I am indebted to Dr. Leah, surgeon to the hospital, for permission to publish the case.

A CASE OF APPARENT DISAPPEARANCE OF CARCINOMA OF CERVIX.

BY EDWARD C. B. IBOTSON, M.D. LOND., &c.,
(TEMPORARY LIEUTENANT, R.A.M.C.

A PAPER read before the Section of Therapeutics and Pharmacology of the Royal Society of Medicine in 1909 by Mr. Wippell Gadd and another author stated that the violet leaf contains a glucoside (viola quercitrin), which is an antiseptic and has the property of easing the pain and lessening the discharge of uterine cancer and also of keeping the urine sweet for a long period after it had been passed, but they did not find that it had any curative effect. The fact that in the following case the nodules disappeared from the scar on the thorax is very remarkable. How far it was due to the violet-leaf infusion combined with other measures and how far it might be considered a temporary or permanent disappearance of carcinoma is difficult to say, but the case seems one worthy of recording.

The patient, a married woman aged 45, had her left breast amputated for cancer in 1914 at Liverpool, and has been under my observation ever since. In July, 1916, symptoms of uterine cancer appeared, and also nodules developed in the operation scar. Offensive vaginal discharge tinged with blood, obstinate constipation and vomiting, painful and difficult micturition, and pain in the left sciatic nerve area. Another medical man, Mr. W. R. Williams, Machynlleth, saw her with me in August and agreed that there was extensive ulceration of the cervix, carcinomatous in character, and that the uterus was fixed in the pelvis and appeared bulky. We agreed that she was too weak to stand another operation so extensive as hysterectomy, and that palliative treatment combined with enemas and vaginal douches was all that could be done. I also suggested vaginal injections of infusion of wild violet leaves, and that the patient should also take a little infusion of the violet leaves internally. This has been persevered with, and she has steadily improved. The nodules in the scar disappeared in September and I can find nothing abnormal in the cervix, and the uterus is now freely movable. Also the constipation and vomiting have quite ceased. She has still pains in the left sciatic nerve area, and is exceedingly thin, as indeed she always has been. But she is taking plenty of nourishment and the pain in the nerve is not so great as to require morphia. She sits up in a chair daily.

Corris, North Wales.

A CASE OF SARCOMA OF FOURTH VENTRICLE.

BY H. M. GALT, B.Sc., M.B. GLASG., D.P.H., F.C.S.,
PATHOLOGIST, ROYAL SUSSEX COUNTY HOSPITAL.

THE following case presented unusual features, clinical and pathological, and is reported in the hope that the notes may be found useful by others who have to deal with similarly misleading clinical conditions.

The patient, a girl aged 14, was admitted to the Royal Sussex County Hospital, under Lieutenant-Colonel E. Hobhouse, about the middle of July, 1916, with a history of having had "meningitis" some months previously. Apparent complete recovery from the "meningitis" occurred, but since that time the patient had occasional periods lasting a few days, during which she appeared to be in a state of coma. In the intervals she appeared to be practically normal, and at no time was there headache, vomiting, paralysis, or any physical sign suggesting the presence of tumour. This naturally led to the suggestion that possibly the condition was hysterical in origin. Death occurred on August 8th, during one of the spells of coma, and the question of cerebral tumour was raised definitely, although as a possibility this had not been lost sight of all along.

Post-mortem.—A soft tumour about the size of a large walnut was found, apparently originating in the valve of Vieussens and separating rather widely the two lateral halves of the cerebellum. There was no definite pressure on the floor of the fourth ventricle, and the lateral ventricles of the brain were not distended. The tumour showed several comparatively large recent areas of hæmorrhage within it. In structure it was, histologically, a small round-celled sarcoma. There was no visible stroma and no gliomatous elements. The cerebral and cerebellar tissues were normal in structure and all the other organs of the body were normal.

The absence of practically all symptoms except recurrent coma made the case a very difficult one to diagnose. On the other hand, this coma was rightly looked upon as a grave symptom, and the patient was kept in hospital in spite of the intercurrent, apparently normal, spells.

Brighton.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF ELECTRO-THERAPEUTICS.

History of the Electro-Therapeutic Department of St. Bartholomew's Hospital.

THE monthly meeting of this section was held at St. Bartholomew's Hospital on Jan. 19th, and took the form of a clinical evening to enable members to inspect the electro-therapeutic department of the institution. Dr. G. HARRISON ORTON, the President, occupied the chair.

Dr. E. P. CUMBERBATCH, who has charge of the electrical department, read a paper on the history of the department and its work. This did not include the X ray section, which is under the superintendence of Dr. Hugh Walsham. The department was founded in 1882. Prior to that date ordinary electrical treatment and testing by faradism and galvanism were carried out in the wards by the house surgeons and dressers. The equipment at the commencement was a very modest one—waiting-room, testing-room, a room for electrolysis, and a bath-room containing a single bath, which for years remained the only electric bath in London. There were three batteries, each containing 50 cells. During the first year 55 in-patients were treated, the cases including paralysis, hysteria, ankylosis of joints, sciatica, epithelioma, and caruncle—the latter for destruction by electrolysis. In the years 1883–5 269 in-patients were treated and 876 out-patients. In 1891 Dr. Stephenson died and was succeeded by Dr. H. Lewis Jones. In 1896 the first skiagram was taken in the hospital, and since then the amount of X ray work had increased yearly. Dr. Lewis Jones's work in the department was very devoted and thorough until his retirement in 1913; indeed, since 1891 the history of medical electricity was closely interwoven with his writing and teachings, and the position occupied by the specialty to-day was largely due to him. Previously there was much obscurity among physicians as to the scope and limitations of electricity in medicine. In 1916 497 new patients were admitted, of whom 284 were cases of disease or injury of the nervous system, mainly peripheral, and for testing. For paralysis the sinusoidal current was generally used, the paralysed parts being immersed in electrified water-baths. This had been in use for many years and produced good results. For 64 cases of nævus, 186 operations under anæsthesia had been performed. For cavernous nævus he (Dr. Cumberbatch) found electrolysis gave the best results, the skin undergoing the least damage thereby. CO_2 snow, diathermy, or the cautery, if effective, destroyed also much underlying tissue. CO_2 snow he reserved for capillary nævi when situated on the trunk or limbs over soft parts. There were also treated in the same time 49 cases of disease of the skin, including 11 of rodent ulcer. Joint cases by occasional attendance were able to secure a decrease of pain and increased movement. There had been but few cases treated in the department of alimentary, vascular, and genito-urinary diseases. Gynæcological cases were not received there. Most of the cases were sent by officers of the hospital and by private practitioners. He was fortunate in the fact that most of the cases he received were suitable ones for electrical treatment; some were only sent because many other treatments had been tried without avail, and by those medical men who appeared to regard the electrical department as a refuge for the destitute. Many cases which were eminently suitable for such treatment, however, did not reach that specialty, and he felt that electricity was not yet occupying the position in medicine to which it was entitled. The reasons for this were, he submitted, three in number: (1) Lack of knowledge on medical electricity by the bulk of practitioners; (2) prevalence of incorrect knowledge on the subject; and (3) the carrying out of electrical treatment by unqualified and unsuitable people. In regard to the first of these, medical students did not attend the electrical department, because they were interested entirely in passing their examinations, and in the M.B. examinations no questions were asked on this subject. Under the second heading, the bulk of practitioners continued in the belief that electricity was for cases which were incurable by other means. Many institutions existed for turning out, armed with a certificate, men intended to carry on unqualified practice, grossly ill-fitted though they were for practising medical electricity. Much improvement in regard to medical students could not reasonably be expected so long as the examinations did not include questions on the specialty. He had not had one student in the department while it had been under his charge. There should be a wider knowledge as to the kinds of cases suitable for electrical treatment and to this end he advocated the exhibition of lists of such conditions in the waiting-rooms. He also recommended that the X ray work should be in a separate department from that for electro-therapeusis, a method now in operation at the 1st London General Hospital, where only two forms of current—the sinusoidal and the direct—were allowed. At the Miller Hospital, Greenwich, the same separation of departments was in operation.

Dr. R. ARMSTRONG-JONES, who entered the hospital 40 years ago, when Dr. Stephenson was house physician, spoke of the benefit which subjects of dementia præcox derived from an electrical bath for 20 minutes twice a week at Claybury Asylum. This experience was embodied in Dr. Lewis Jones's well-known book on medical electricity.

Dr. W. J. TURRELL referred to a Dr. Stephenson who practised 100 years before the Dr. Stephenson to whom Dr. Cumberbatch adverted, and who in his M.D. Edinburgh thesis described the static breeze. He confirmed the remarks as to the great help given by the late Dr. Lewis Jones to a fuller recognition of the claims of medical electricity by the profession. One of the most potent steps towards this recognition was taken when medical men themselves were treated by this means.

Dr. JAMES METCALFE, Dr. AGNES SAVILL, and Dr. HOWARD HUMPHRIS also discussed the paper, the general expression being in favour of not regarding irregular practitioners as competitors, but of so maintaining the specialty at a high level, while striving to make new advances, that the public would come to see it was in their own best interests to consult recognised authorities.

Dr. CUMBERBATCH replied.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A pathological meeting of this society was held on Feb. 2nd, Dr. A. Saunders, the President, being in the chair.—A paper was read by Dr. A. K. Gordon on the Clinical Significance of Laboratory Tests for Syphilis.—Dr. J. A. Shaw-Mackenzie showed specimens demonstrating the Action of Copper Salts on Protozoa.—Specimens were also shown by Mr. Aslett Baldwin, Dr. Bamford, and Dr. H. H. Sanguinetti, and skiagrams were shown by Dr. Reginald Morton.

LONDON DERMATOLOGICAL SOCIETY.—A meeting of this society was held on Jan. 16th, Dr. W. Knowsley Sibley, the President, being in the chair. The following clinical cases were shown:—Captain W. Griffith, R.A.M.C., exhibited a case of Kaposi's Disease. Captain P. Carney, R.A.M.C., gave the following description of the case: A Canadian soldier, aged 20 years, who had worked in the open all his life, either as a labourer or a carpenter, developed a general pigmented condition of the skin of the face, accompanied by warty growths and marked telangiectasis. Some of the lesions had been removed by excision, others were treated with radium. After this treatment the lesions became inflamed and very painful, but eventually dried up and completely disappeared. He described the history of the disease as being first a macule, then a papule followed by a warty growth, accompanied with ulceration. There was no family history.—Dr. Morgan Dockrell brought forward a case of Xeroderma Pigmentosum, as described by Kaposi.—In contrast to the above cases Dr. J. L. Bunch brought forward one of von Recklinghausen's disease in a female, which was of 15 years' duration, the tumours, which varied in size, were universal in distribution and slightly pigmented; also a case of Strychnine Rash in a man aged 51, and a case of Epithelioma affecting the dorsum of the right hand in a man aged 66.—Captain Griffith also exhibited a case which he described as syphilis and psoriasis.—Mr. C. H. Mills said that he had an opportunity of seeing several cases of psoriasis in which syphilis had come out on the top; the blood in these cases had been tested and a positive Wassermann reaction obtained in what appeared to be acute cases of psoriasis.—Lieutenant-Colonel L. W. Harrison, R.A.M.C., said that the Wassermann reaction in these cases

was an extremely important point, and he described the present tests that were being used in the various laboratories as being too light in value. In these conditions, he said, it was extremely likely to get positive Wassermann reactions in such cases as Mr. Mills had described; his own modification of the test, being less delicate, had been designed to escape these errors, as a strong reaction was demanded and not simply a positive manifestation.

Reviews and Notices of Books.

Encyclopædia Medica.

Second edition, under the General Editorship of J. W. BALLANTYNE, M.D., C.M. Vol. IV. Ear to Filariasis. London and Edinburgh: W. Green and Son, Limited, 1916. Pp. 685. Price 20*s.* net.

AN encyclopædia is a hard nut for a reviewer to crack, but the fourth volume of this great work gives us the opportunity of reviewing a series of articles on kindred subjects. The articles on the ear occupy a quarter of the volume and furnish a good instance of the associated strength and weakness of the encyclopædic method. The inevitable inequality of performance is balanced against the excellence of some of the articles. The single editorship is not enough to pull together the loosely strung contributions into a whole. The publisher's part is excellent, illustrations are good, plentiful, and modern, although the prehistoric old woodcut on p. 4 is out of place.

Of the several articles we welcome especially those on otosclerosis and on the labyrinth and eighth nerve. Both are thoroughly up to date, and that on otosclerosis may be said to be almost in advance of its text-book time. The labyrinth and eighth nerve are treated in genuinely encyclopædic style, and a most satisfactory article results. The weak spot lies in the articles on inflammatory diseases of the ear. Here there is too much overlapping between the writers of the "acute" and "chronic" articles, while the treatment of chronic middle-ear suppuration and its sequelæ is almost startlingly inadequate. The whole article only occupies 35 pages. The radical mastoid operation takes three-quarters of a page; the only two flaps for the plastic operation on the meatus mentioned are those of Panse and Milligan, neither, we believe, in general use, while no mention is made of Ballance's flap, probably the most widely used and generally useful of all, apart from its historic claims. In the portion of the article devoted to meningitis we find no mention of Babinski's sign, no mention of jerks, knee and other, nothing said of neck-stiffness or of the abdominal reflex. Kernig's sign is spoken of as if it were a matter the writer had heard of but had not experimented with. This part of the article is punctuated with loose expressions, such as "lumbar fluid," "antrectomy," "pia arachnoid cavity," and later, under lateral sinus thrombosis, the sentence, "the occurrence of a rigor, or series of rigors, followed by an attack of shivering," leaves the reader in doubt as to what constitutes a rigor in the mind of the author.

The article on chronic catarrh of the middle ear is thoroughly sound and sensible, and if the writer has nothing very fresh to say, at all events he gives no encouragement to overmuch tinkering. Attention might, however, have been more firmly directed to the treatment of the antecedent causes which are quite justly enumerated. The introductory "examination of the ear" is thorough, clear, and modern, and is one of the best articles of the series.

Les Appareils Platrés.

By JACQUES CALVÉ and MARCEL GALLAND. With 109 illustrations. Paris: Baillière et Fils. 1917. Pp. 88. Price fr. 2.50.

THIS little volume is the first of a series of French practical handbooks to be produced under the editorship of Dr. Calvé and Dr. Lamy. As the authors state in their preface, their aim is to give practical instruction, and in this they have succeeded admirably. Plaster-of-Paris, while of universal use in this country, is not employed with us to the same extent as it is in France, and few English practitioners are aware of the skill which French surgeons have acquired in its uses.

The volume is divided into three parts: (1) The making of the plaster apparatus; (2) the orthopædic principles requisite for immobilisation; (3) special technique in the application of plaster to various conditions. In the first part the manufacture of the plaster apparatus is described lucidly and with special attention to practical requirements. Reversing, in applying a plaster bandage, is condemned, and in its place Ducroquet's pleating manœuvre, which has incontestable advantages, is described in detail. Great stress is rightly laid on the importance of correct and accurate moulding, and full directions to secure adequate moulding are detailed. Attention is drawn to the accidents which may arise in the application of plaster, and their appropriate remedies are indicated. The disadvantages of plaster are briefly discussed and dismissed. There is little to criticise but much which may be commended. The directions given are terse, clear, and essentially practical. Part 2 is devoted to the orthopædic principles involved in immobilisation by plaster apparatus. Brief and to the point, this section well repays perusal, and its study will prevent many errors commonly seen and easily avoided. The third portion is directed to special technique. The clearest instructions are given with restraint and brevity. Naturally considerable attention is directed to the application of plaster-of-Paris in tuberculous disease of the bones and joints. The authors still favour the use of the "Minerva" in cervical caries. While this appliance is certainly efficient, it is uncomfortable and not altogether devoid of danger. Alternatively preference might be given to a high plaster jacket with a frontal band which would render unnecessary immobilisation of the chin and leave the throat free. The use of the Minerva is not to be commended to the inexperienced. This, the most difficult of all plasters to apply successfully, not unnaturally attracts the ambition of the tyro, and failure in its application may result in his discouragement and be a source of danger to the patient. It should be reserved for the expert only. A short article is devoted to the Abbott jacket as used in cases of scoliosis, and attention may be drawn to an ingenious method for introducing the felt pads employed.

We have made some minor criticisms on what appears to us to be a thoroughly practical and useful handbook. Parts 2 and 3 might, we think, advantageously be expanded in later editions. The illustrations are numerous and carefully selected and enhance the value of the text. The volume should be in the hands of all house surgeons and senior students, and may be consulted with advantage by medical men called upon to use plaster-of-Paris. It supplies a real need and should certainly do much to popularise the use of plaster amongst those not too prejudiced to appreciate its advantages. Incidentally it should help to familiarise the student with the French technical terms and make for a highly desirable medical entente.

The Catarrhal and Suppurative Diseases of the Accessory Sinuses of the Nose.

By ROSS HALL SKILLERN, M.D., Professor of Laryngology, Medico-Chirurgical College. London and Philadelphia: J. B. Lippincott Company. Pp. 418. 21*s.* net.

Professor Skillern's handbook on the catarrhal and suppurative diseases of the accessory sinuses of the nose was first published in 1913, and has now reached its second edition. Although the entire work has undergone a systematic revision, the original plan of the work has not been changed. The subject is dealt with in six parts. The first part is given up to general considerations; the next four parts to the maxillary, the frontal, the ethmoidal, and the sphenoidal sinuses respectively, whilst the last part deals with multiple or pansinusitis. Repetition occurs in several places, but this obviates frequent references to other portions of the book.

The greater part of the changes consist of amplification, amongst the more important of which are the following: The treatment of sinus disease in children; the use of the naso-pharyngoscope in the diagnosis of obscure conditions in the sphenoidal and posterior ethmoidal regions; and a compilation of the American mortalities following the Killian operation on the frontal sinus. The number of pages has not been materially increased. The book is profusely illustrated with 247 figures in the text and five coloured plates. It contains a good index and nearly 600 references to other authors, which make it a handbook for the student and a work of reference for the teacher.

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THE LANCET.

LONDON: SATURDAY, FEBRUARY 10, 1917.

Economy in Food.

ON Tuesday last Mr. NEVILLE CHAMBERLAIN, in launching his scheme for National Service, alluded to plans, not yet complete, to ensure "that doctors are so mobilised and distributed that the needs of both the civil population and the Army can be met." The announcement will cause surprise to no reader of our columns, and comes at the right moment, when not only is general service seen to be the duty of citizenship, but when the nation is receiving for the first time official instructions to reduce the food consumption. Coincident with the publication of a statement on the whole subject by Lord DEVONPORT, the Food Controller, a report has been published on the food-supply of the United Kingdom, drawn up by a committee of the Royal Society at the request of the late President of the Board of Trade, Mr. RUNCIMAN. This was issued on Feb. 2nd. The signatories include the following: Dr. A. D. WALLER, professor of physiology in the University of London (chairman); Dr. W. L. ASHLEY, professor of commerce in the University of Birmingham; Mr. A. W. FLUX, of the Board of Trade; Mr. A. D. HALL, Development Commissioner; Dr. F. G. HOPKINS, professor of bio-chemistry in the University of Cambridge; Mr. T. H. MIDDLETON, Board of Agriculture; Dr. D. NOEL PATON, professor of physiology in the University of Glasgow; Dr. W. H. THOMPSON, professor of physiology in the University of Dublin; and Mr. T. B. WOOD, Drapers Professor of Agriculture in the University of Cambridge. The report is divided into three parts, which deal respectively with the food-supply of the country throughout the period of five years preceding the war; the food-supply in 1916; and the methods by which our available sources of food can be developed, utilised, and organised. It is a valuable document, which can be obtained at the Stationery Office or through any bookseller for 4*d.*, and should receive the close study of the medical profession, who ought to be in a position to give advice to caterers, public or individual, upon the minimum requirements of food and the sources of energy production.

Turning to the statement by Lord DEVONPORT, issued on the same day as the report of the Committee of the Royal Society, we find that the Food Controller has published a clear warning declaring the existing need for food economy. At the outset the nation is asked by the Food Controller to economise voluntarily and with individual patriotic effort. If the response comes in the wholehearted way that Lord DEVONPORT hopes, compulsory rationing may be avoidable. Otherwise a compulsory system may have to be established. The curtailment of the nation's food consumption, by whatever method it is adopted, is, in his opinion, urgent, and a real and serious attempt has got to be made in the very near future by every individual to reduce, where it is possible, his or her food allowance. The suggestion is to give up extravagance and waste rather than to relinquish actual necessities, and this opens up the subject which for long has been a matter of debate amongst physiological authorities, as to what constitutes an actual necessity. Lord DEVONPORT appeals not so much for actual sacrifice of bodily needs as for a self-imposed restraint, a practice of frugality which will ensure, he says, a sufficient supply for all. The irreducible dietetic minimum in terms of food commodities at once comes into question. Guided, no doubt, by the weight of physiological evidence and opinion at his disposal in the report to the Board of Trade, the Food Controller has put forward examples of allowances in the shape of the three staple foods—bread, meat, and sugar. After consideration of available stocks and probable means of obtaining future supplies, the situation requires, he says, that heads of families should endeavour to limit themselves to the weekly purchase for each person comprising the household of the following quantities per head per week: bread, 4 lb. (or its equivalent in flour, 3 lb., for bread-making, &c.); meat, 2½ lb.; and sugar, ¾ lb. These foods are taken by him to be the cardinal factors of the situation, and it is stated that though the above quantities will form the basis of the dietary scale they will naturally be supplemented by other food products. This is an important qualification. So far, there is said, for example, nothing about barley, oats, fruits, milk, cheese, butter, and so forth, but meat includes poultry, game, bacon, sausages, and tinned meat. The ration of meat is calculated by weight as supplied by the butcher, and includes bone and fat. It is believed that a resolute effort on the part of each consumer to reduce consumption by at least 1 lb. of bread or ½ lb. of meat per week, or both, will automatically bring about a saving of over 1,000,000 tons per annum of these foods.

It is early yet to deal adequately with the physiological side of Lord DEVONPORT'S proposals as they are not complete; so far they disclose only a general policy as regards the three staple commodities—bread, meat, and sugar. We recommend all our readers to consult the article by Dr. EDMUND SPRIGGS, published on p. 234 of this issue of THE LANCET, for valuable information on the subject. The question whether the daily amounts of these foods are dietetically sufficient will no doubt be discussed, as well as the allowances made in regard to supplementary articles of food. For example, when we consider in a diet the values of protein, carbohydrate, fat, and mineral substances, one or other or all of these could be presented to us in other foods not mentioned in Lord DEVONPORT'S proposals, but not so obviously the staple foods of this country, while their supply is to a great extent an unknown proposition. The nation is perfectly willing to participate in a scheme involving any

self-denial which is a help and aid to those fighting for us on land and sea, and the authorities are now prepared to make clear what is expected of the people. Lord DEVONPORT has undertaken to inform the public how to economise and how to adjust individual needs to the situation as they may develop. A staff has been organised having for its object to guide the people in its eating, and weekly notices of instruction and advice will be issued. The scheme is sound enough as regards its aim, and the definite proposals made should secure immediate adherence, though everyone can see the direction in which they will press hardly. The economy in flour is drastic. The details have yet to be discussed, and probably adjustments based on the representations of scientific and economic authorities will receive careful consideration. Concerning the coöperation of the nation no misgivings need be entertained.

National Health in 1915-1916.[1]

IN presenting his review of the national health in 1915–1916 Dr. NEWSHOLME discusses certain difficulties resulting from the conditions of war which have continued substantially unimproved since August, 1914. Among these difficulties he mentions, first, the serious disturbance which has affected local populations, in consequence of which the uncertainty necessarily attaching to local estimates has been greatly increased. Secondly, he refers to the creation of gigantic war industries throughout the country, which are not aimed at the national requirements after the war. At least a partial solution of the population difficulty—complicated as it has been in the past by the duplication of areas—was supplied at the recent Census by the substitution of the administrative for the registration or Poor-law area as the unit of tabulation for official purposes. By this means the statistical returns of the local medical officers of health as well as those of the Central Office at Whitehall are brought into line with the national records of Somerset House. Since the outbreak of war the work of the medical staff of the Local Government Board has centred chiefly around the military position, and this is especially true with reference to the second year of war, now under review. In his previous annual report Dr. NEWSHOLME gave account of the measures taken to safeguard the public health under exceptional conditions, as well as of the detailed coöperation arranged between the military and civil authorities. The efficiency of the collaboration is established by the present report, and admitted by the War Office. It will, we hope, be further enhanced as a result of Mr. NEVILLE CHAMBERLAIN'S statement that the mobilisation of the whole medical profession is under consideration.

During 1915 a special visitation of military camps was undertaken by the medical inspectors of the Board in conference with the military and civil sanitary officers, the medical inspectors being further engaged in discussing with their military colleagues the serious problems of camp water-supplies and sewage disposal. Throughout the year the local sanitary authorities have provided liberal accommodation in civil isolation hospitals for soldiers suffering from infectious disease. Similar preventive measures have been arranged for with the Admiralty, the medical staff of the Board having collaborated with the Admiralty officers in the inspection of naval camps and billets. Striking evidence of the success of such continued effort is furnished by the fact emphasised by Dr. NEWSHOLME that, with the sole exception of measles, communicable diseases have shown no increase during the year. The weekly incidence among military and civil populations respectively of cases of measles, enteric fever, and cerebro-spinal fever are given in the report, and the distribution in both populations of poliomyelitis is also set out. The prevalence in England and Wales of the latter two diseases forms the exception in a yearly record of infectious diseases which was otherwise favourable. Although it is known that half the children recently born still remain unprotected by vaccination, it is noteworthy that small-pox has hitherto failed to gain more than a temporary footing in any part of England. Most of the 78 cases reported during the year were definitely traced to imported infection from elsewhere. In every case the local provision for isolation seems to have been effective in preventing extension. One of the commonest accompaniments of prolonged warfare is dysentery. Unless this contagious and recurring disease, as it occurs in the field, is treated under satisfactory conditions it is liable to cause widespread mischief amongst civilian populations. It is satisfactory to learn that owing to the strenuous precautions adopted by the Army medical staff very few instances have arisen in which the disease has spread outside the military hospitals containing dysentery patients. Notwithstanding the return to this country of many soldiers recovering from dysentery, the disease is nowhere reported to have prevailed epidemically. Neither has typhus fever acquired a foothold in this country, either among the military or the civil population, in spite of the fact that the disease has been prevalent during portions of the last two years in Serbia and in certain parts of Russia as well as in several of the prisoners' camps in Germany. The infection is known to be communicated chiefly by means of body lice, and the conditions of life in camps and close billets make pediculosis difficult of control. It is therefore satisfactory to hear that the return of many thousands of troops from the various fronts has not been accompanied by spread of typhus at home. The country has also remained free from plague and from Asiatic cholera.

The best criterion of the sanitary condition of a community undoubtedly consists in the prevalence or absence of enteric fever. In 1915 the amount of this disease was so slight as to inspire hope

[1] Supplement to the Forty-fifth Annual Report of the Local Government Board: Report of the Medical Officer.

that enteric fever, like typhus, will ere long become practically extinct in this country. There has been in recent years a remarkable decline in the notifications of enteric fever, the numbers having fallen from 13,000 in the year 1911 to 6000 in the year under review. The extent to which decline has taken place will be appreciated from the fact that even so recently as 1893 enteric fever caused 6801 deaths, a larger number than the total of cases of enteric sickness notified in 1915. The three counties showing the highest prevalence of enteric fever are Durham, the West Riding of Yorkshire, and Northumberland, the incidence being greatest in crowded centres of population, or where elementary sanitation is notoriously defective. Cerebro-spinal fever showed exceptional activity in the year 1915, and special work was undertaken by the military and civil staffs to control its spread and to investigate its causes, in the hope that completer knowledge would lead to prevention. In his remarks on the war in relation to cerebro-spinal fever the Medical Officer to the Local Government Board mentions the occurrence of 1146 military cases in England and Wales, excluding cases originating overseas. Among the civil population 2566 attacks were notified in the year under review, as compared with 315 in the preceding year and 279 in 1913. Cerebro-spinal fever prevails chiefly in the earlier months of the year, reaching its maximum incidence in March or April. Acute anterior poliomyelitis occurred in sporadic fashion during the year. In marked contrast to cerebro-spinal fever poliomyelitis is essentially a summer disease, and although in this country the disease has never assumed epidemic proportions, it occurs here annually in considerable amount. In 1915 the reported cases numbered 517, as against 509 in the previous year, and 744 in 1913. From inquiries concerning local outbreaks but little evidence emerges of the spread of infection from person to person, but this is a line of investigation that no doubt awaits pursuit when the personnel of the Local Government Board is less depleted. Despite the shortage of officers, however, the control of pulmonary tuberculosis has received special attention during the year. In certain districts the entire staffs of tuberculosis officers have been detached for military service, their places being often taken by female medical officers or by general practitioners. The number of beds available in residential institutions for the treatment of this disease exceeded 11,000 in the spring of last year. This number would have proved insufficient but for the fact that tuberculous persons enjoying the high wages of war-time have frequently been unwilling to submit to isolation in sanatoriums. In the majority of counties there is still a shortage of hospital beds for advanced cases of phthisis. It is noteworthy that whenever a soldier is discharged from the service on account of tuberculosis the fact is promptly reported to the medical officer of health of the district to which the soldier is proceeding. In all cases, therefore, tuberculous ex-soldiers are brought under the supervision of the sanitary authorities. With regard to the compulsory isolation and detention of tuberculous persons, which has been tried at St. Helens and suggested in other places, Dr. NEWSHOLME is of opinion that it would be contrary to the public interest that such powers should be entrusted to a local authority unprovided with an adequate supply of beds for the treatment of advanced cases of consumption.

Public health work is not restricted to the control of disease communicable by infection. It embraces all measures, whether of prevention or of treatment, by which the health of the community may be improved. Second only to the work directly arising out of war conditions the attention of the Board's medical department has been occupied throughout the year in considerations for maternity and child welfare. The need for increased effort to save child life is shown by the perilous fall in the natural increase of the population. In England and Wales during the year 1914 there were 362,354 more births than deaths. In the year 1915 the excess of births over deaths was only 252,201. There were 64,569 fewer births and 45,584 more deaths in 1915 than in the preceding year. The reduction in the number of births emphasises the importance of saving life and of improving the health of all survivors. "There is no insuperable difficulty," writes Dr. NEWSHOLME, "in reducing the total deaths in childhood to one-half their present number." There are at present in England and Wales about 1000 salaried health visitors, the number having increased by 400 since the commencement of the war. The practicability of extended work of this kind has been increased by the passing of the Notification of Births Extension Act of 1915, which gave to county councils the powers of a sanitary authority for the purposes of the care of expectant mothers, nursing mothers, and young children. About half the county councils and most of the county boroughs have adopted schemes under the Act, and many of these are in actual operation. As an unfortunate effect of the war there has not been an expansion of voluntary work for child welfare to the same extent as of official work, the subscriptions of voluntary societies having fallen off. The urgency for more definite action on the part of public authorities is therefore considerably increased.

The Control of Cerebro-spinal Fever.

Cerebro-spinal fever has always shown a special liability to attack military forces, and considerable apprehension naturally arose over the state of affairs in this country a few months after the outbreak of war, when hundreds of camps filled with recruits at a susceptible age were scattered everywhere. The severity of the recent outbreaks is well shown in the diagram given by Dr. NEWSHOLME in his report. Early in 1915 it became apparent that an epidemic of this disease was imminent, and the curve reached its maximum in March and April of that year. 2566 civil and 1146 military cases were

reported in the course of the year, as compared with a total of 279 in 1913. In 1916 the epidemic curve reached only about half the height of that attained in 1915, and there is good ground for the hope that 1917 may witness a further decrease. At the outset Colonel W. H. HORROCKS and Colonel R. J. REECE were placed in charge of the military administrative measures for dealing with the disease, and it soon became apparent that bacteriological advice and assistance upon a large scale were required if the epidemic was to be controlled. The Medical Research Committee undertook to provide the scientific assistance required, and placed Lieutenant-Colonel MERVYN GORDON at the head of the bacteriological organisation. A central cerebro-spinal fever laboratory was established at Millbank, where Major T. G. M. HINE assisted, and numerous provincial laboratories were set up at suitable centres. An analysis of the reports from these centres made by a small committee of bacteriologists was published a year ago, and this year Lieutenant-Colonel GORDON issues a report on work done at Millbank, detailing the methods devised for the control of cerebro-spinal fever during the past two years and giving some indications of the results which have already been achieved. To the painstaking experimental work on which preventive measures have been based, and for which great credit is due to Lieutenant-Colonel GORDON and his colleagues, we desire to draw special attention, and, in particular, to two outstanding features of it: (1) the serological recognition of the type of meningococcus as a guide to isolation of positive contacts; and (2) a method for the treatment of such contacts.

The spread of cerebro-spinal fever is by healthy persons who carry the meningococcus in the naso-pharynx, themselves escaping the disease, and it is estimated that some 2 per cent. of the population may be carriers under ordinary circumstances, while at certain times and in certain districts the percentage may be much higher. The proportion of carriers who develop the disease is an extremely small one. Captain SHEFFIELD NEAVE, who writes in this issue of an epidemic in East Suffolk numbering 73 cases, says: "No contacts were known to catch the disease." The insidious mode of spread accounts for the discontinuity usually observed in cases of cerebro-spinal fever, and renders the disease exceedingly difficult to control. More than one type of meningococcus may be concerned in producing the disease, and the term parameningococcus has been introduced for that type which showed serological nonconformity with the classical organism. The first important research undertaken by Lieutenant-Colonel GORDON, after surmounting initial difficulties, was a serological investigation into the strains of meningococcus concerned in the existing epidemic. Taking as his criteria the phenomena of agglutination with specially prepared univalent sera, and in particular the power of absorbing specific agglutinins, he found that the races of the microbe identified in the cerebro spinal fluid in the epidemic of 1915 fell into four groups, which were similarly encountered in last year's epidemic. He termed them Types I., II., III., and IV., and proved them to breed true and to remain unaltered in their serological characters after a year's culture. In any given case only one type has been detected, and always a single type in both naso-pharynx and cerebro-spinal fluid of a particular patient. The close contacts of a case have also usually harboured the same type as the affected individual. The term "epidemic type" suggested by Lieutenant-Colonel GORDON seems a justifiable one.

The practical difficulty confronting those who were endeavouring to control the spread of the disease amongst the military forces was that the isolation of the numerous positive contacts involved serious interference with the necessary training of healthy men. Now in investigating naso-pharyngeal strains of the meningococcus, both in contacts and non-contacts, it had been seen that quite a considerable proportion of them did not correspond serologically with the epidemic types. It was therefore determined to segregate only those positive contacts who were ascertained to be carrying meningococci of the epidemic types. The reduction in numbers thus effected had the immediate result of rendering practicable the policy of temporary isolation. It may be admitted that this procedure is not perfect, but from the examples given in Lieutenant-Colonel GORDON'S report it appears to have met with considerable success. Thus, to quote a single example, Captain R. R. ARMSTRONG swabbed no less than 10,000 men and provisionally isolated 410 as carriers of an organism resembling the meningococcus. Lieutenant W. J. TULLOCH subsequently examined 324 serologically (the remainder having meanwhile become free of the coccus) and was able to release 103 of them on the agglutination results. No evidence came to hand that any single man of this infected garrison passed as negative by Captain ARMSTRONG either developed the disease or passed it on to another. Whilst attended with such success in military practice it is nevertheless obvious that this mode of controlling cerebro-spinal fever is not readily applicable to civil practice.

Having weeded out the probably important carriers, Lieutenant-Colonel GORDON went on to perfect a new method of curing them. While the majority of carriers rid themselves of their meningococci in a week or two, a certain number retain them for weeks or months, and no method of cure has hitherto met with much success. Trials were made by saturating the air of a small room with extremely fine droplets of a disinfectant, as had previously been done by KÜSTER. A Lingner spray was first used, but was later replaced by an apparatus designed by Second Lieutenant E. GORDON, R.E., which proved more efficient and is fully described and figured in the report. The first disinfectant chosen for trial proved the best. It was toluene-sodium-sulphochloramide, briefly known as chloramine-T, a substance prepared by Dr. DAKIN and Professor COHEN in the course of researches upon the mode of action of the hypochlorites. It is non toxic and does not coagulate albumin. The air so saturated was found to sterilise plate cultures of staphylococci and yet to be tolerated by human

beings for 15 or 20 minutes. A group of 14 chronic carriers received the treatment daily, and all but 3 were cured after at most 13 daily inhalations, though some had been carriers for 10, 12, and even 17 weeks. Later trials were made with zinc sulphate in place of chloramine, but the results were much less satisfactory. Chloramine treatment appears to offer a better prospect of quickly curing the carrier condition than any which has yet been tried. Besides these two important investigations the report contains a large amount of valuable detail, notably in Captain M. FLACK'S report on his work in the London district during 1916. As a whole, it deserves careful study and is encouraging as an earnest of further progress.

Annotations.

"Ne quid nimis."

STOCK MIXTURES.

THE advantages and disadvantages of stock mixtures have long been discussed from many different points of view. Teachers and examiners unite in condemning their employment in spite of their convenience. It is often asserted that the use of stock mixtures in hospitals tends to foster careless disregard of many opportunities. Students may get into a habit of writing the name of a stock mixture and yet be profoundly ignorant of all that the name implies. They may occasionally refer to the hospital pharmacopœia for information, but it is exceptional for them to memorise the full list of the ingredients or the proportions in which they are present in the single dose. Hence the sense of bewilderment which is so often felt when the sphere of activity is changed and the appropriate prescription is required at short notice. Hence also the complaint so often heard from examiners about the lost art of prescribing. On the other hand, there is no denying the practical advantages of stock mixtures for those who have to dispense for large numbers in a limited time. In hospitals with huge out-patient departments it is inevitable that stock mixtures must be used so as to prevent undesirable congestion of work. For the convenience of students the key or clue is the hospital pharmacopœia, with prescriptions arranged in single doses, and it is left to the dispensing staff to do the necessary calculations when preparing any required quantity of stock.

Viewing the dispensing under the National Health Insurance Act as analogous to a provision for out-patient treatment on an extensive scale, the Insurance Commissioners have issued a revised list of mixtures which are capable of being stocked in bulk without deterioration. According to a note in the *Pharmaceutical Journal*, the revision consists in the adjustment of the proportions of ingredients in each mixture to an 80 fluid-ounce bulk quantity. In other respects this formulary is identical with that issued in the spring of 1916. All medical practitioners engaged in panel practice will have to familiarise themselves with this list, and no doubt will find some interest in endeavouring to calculate back the quantity of each ingredient in a dose of half a fluid ounce. The calculation will be greatly facilitated by bearing in mind the number of grains in the avoirdupois ounce—namely, 437·5. The list comprises 28 mixtures, and to these names have been given without any definite principle. Sometimes the most important ingredient is mentioned alone; occasionally the names of two appear together. Thus we find mistura bismuthi, mistura colchici, mistura copaibæ, or again mistura ammoniæ et senegæ, mistura ferri et quassiæ, mistura sodæ c. rheo. It used to be considered a golden rule that the name of a mixture should have no reference to the supposed action, but in the list this rule has been transgressed repeatedly; thus we meet with mistura astringens, mistura carminativa, mistura diuretica, mistura expectorans, and so on. While the various ingredients of these mixtures have obviously been carefully selected with primary reference to the avoidance of deterioration, it is satisfactory to note the wide range of really useful remedies capable of inclusion. The compilers have not felt bound to galenicals mentioned in the British Pharmacopœia, but have dipped into the Pharmacopœia of the United States for a liquid extract of colchicum seeds and a liquid extract of senega root. They have also drawn on the British Pharmaceutical Codex for an emulsion of chloroform which appears in 9 of the 28 mixtures, and from the same source, without acknowledgment, they have derived the liq. cocci. Apart from the small amount of tincture of quillaia (2 per cent.) present in the emulsion of chloroform, and the liquor cocci in mistura tussis, each fluid ounce containing 1 minim of a solution of 20 per cent. of alcohol, alcohol is noteworthy by its relative absence in these stock mixtures. Tinctura camphoræ composita and tinctura opii are the only other representatives, and these are certainly not included for any preservative action of the alcohol. In natural contrast to the prescriptions commonly met with, we have to note the absence of sugar, with the exception of that contained in pulv. cretæ aromat., and of syrup, which is represented only in the mistura tussis.

It is stated that this list has been "agreed" on by the British Medical Association and the Pharmaceutical Society of Great Britain, or "adjudged" by the Insurance Commissioners, and congratulations are due upon the general excellence of the work. One mixture, however, has already afforded an occasion for mirth. It contains six ingredients, of which three are powdered vegetable drugs; a pharmacist's assistant suggests that this compound is the idea of a doctor who hides his identity, and there is no clue whether the praise or blame is to be awarded to the two bodies who "agreed," or to which one of them, with the Insurance Commissioners who "adjudged." This is a pity, as otherwise some information might be given about the mode of securing suspension of these powders.

SIMULATED JAUNDICE FROM PICRIC ACID.

IT may be interesting at this time, when subterfuges may in some few instances be resorted to in order to escape the obligations of duty to the State in respect to military service, to draw attention to a new method of detecting picric acid in the blood in cases of simulated jaundice. Dr. L. Tixier and Dr. A. Bernard publish such a method in the *Progrès Médical*, Nov. 20th, 1916, and its advantages lie in the fact that it is simple and requires only a small quantity of blood taken from a finger tip, and a further merit consists in the possibility of the test being applied as late as three weeks after the picric acid has been taken. The

method advocated by these observers is as follows: 15 drops of blood from the finger are received into a test-tube containing 3 c.c saline solution 9·5 per cent., and well shaken twice or thrice at intervals of an hour in order to facilitate separation and contraction of the clot. The test-tube is then allowed to remain 24 hours at the ordinary temperature. A certain number of globules fall to the bottom, while the rest remain entangled in the clot. From 1 to 2 c.c. of the saline solution in the neighbourhood of the clot are then taken out by a pipette. This fluid is coloured faintly with yellow in cases of picric jaundice; an equal quantity of a 1 in 50,000 solution of methylene-blue is then added and vigorously shaken. After an hour from 10 to 15 drops of chloroform are added and after shaking are allowed to subside to the bottom of the tube. If the picric acid is present in considerable amount the chloroform takes a dark bottle-green tint, in smaller quantities a pale green. The same experiment performed on 24 patients suffering from catarrhal jaundice gave no reaction.

THE LAW AND THE DOCTOR.

WE have received a copy of an address delivered before the Academy of Medicine, Toronto, by Mr. Justice W. R. Riddell, a judge of the Supreme Court of Ontario, under the above title. The subject would appear to be a large one for treatment in a single discourse, and the lecturer has not unnaturally found himself drawn into the discussion of the more obvious points at which the law and the doctor come into contact, or, not infrequently, into collision. Equally naturally a prominent place is assigned to those doubts and questionings which arise in circumstances likely to lead to such contact or collision. Instances of these occur when a medical man finds himself, in consequence of professional attendance upon a patient, the receptacle of a secret, the revealing of which might expose his patient to prosecution, whereas the concealment of it might subject the medical practitioner to blame, if not to the suggestion of criminality on his part. There are also cases in which the medical man has become acquainted with facts which, if made known in a court of law, might affect the result of a civil action. The lecturer illustrates cases where crime is involved with concrete examples, such as the visit to a doctor of an injured man who states that his hurts are due to his having been interrupted when committing a burglary. Another slightly different example given by him is the familiar one of the medical man who attends a woman who has aborted, and who is told nothing, but suspects that there has been criminal interference which has caused her condition. The Canadian judge propounds in the latter case the question whether the medical man should make no inquiries or should try to find out who performed the illegal operation. He gives the same advice in both instances that the medical man is in no different position from the layman and that he should look at the matter from the point of view of a "good citizen," or in the case of the woman as if he were a "friend" instead of a "doctor." We are, however, disposed to consider such comparisons to be misleading and to point out that the medical man is in a totally different position from any layman. He is consulted in consequence of his practice of a certain profession, and consequently is far more often exposed to the dangers and difficulties which confidences of the kind indicated must involve; he can have no feelings of friendship towards a patient who is a stranger, but he has the general ethical rules of his profession forbidding him to reveal his patient's secret; he, further, has knowledge of facts in which the law would be interested such as no layman would possess, whether the latter became the confidant of a burglar or formed the opinion that a woman had been the prey of an abortionist. The medical man occupies, in short, an exceptional and altogether peculiar position. The law affords him no special protection or privilege; in this our courts and those of Canada apparently agree. Equally, however, in Canada and here, the medical man is treated usually with consideration as a witness, where the revelation of professional confidences is involved, and if a judge decides that in accordance with the law, and to further justice, he must break silence, none should blame him for obeying the law of his country. He will, however, be well advised if, in attending all patients, he avoids by every means in his power being made the recipient of confidences not necessary to assist him in the treatment of the case before him. It is obvious also that he should allow no one to know that any such confidences have been imparted to him, or even that he may possess knowledge professionally acquired the revelation of which would damage his patient. As a general rule, also, he should remember that his duties are those of a medical man, not a detective. The obligation to maintain secrecy with regard to his patient's affairs may, however, be relaxed in one respect; when he feels it to be desirable for his own guidance he should obtain advice as to what his conduct should be, and no one will blame him if he consults a brother practitioner. To do so will strengthen his own position, if his actions should ever be impugned, by securing for him a witness who will testify to his good faith and to the correctness of his conduct.

SYPHILIS WITHOUT CHANCRE IN WOMEN.

THE occasional absence of chancre in certain cases of syphilis, particularly in women, has long been recognised. At a recent meeting of the Académie de Médecine of Paris Professor Gaucher brought forward an interesting view of this phenomenon. Chancre being simply the reaction of the epidermis attacked by the virus, it is obvious that if the inoculation takes place more deeply, by introduction of the virus into the general circulation, the reaction will be absent. Professor Gaucher gave as an example the case of a surgeon who in operating on a syphilitic patient wounded himself deeply with a bistoury. He never had a chancre, but six weeks later the roseola appeared. Another case was related to him by the late Professor Fournier. At the Saint Louis Hospital psoriasis was being treated by intramuscular injections of yellow oxide of mercury. One day a patient suffering from psoriaform syphilis, which was mistaken for psoriasis, was injected. The same needle was used to inject a patient suffering from psoriasis and six weeks later the roseola appeared. In women Professor Gaucher admits that the chancre is frequently overlooked and cannot be found if the examination is not made until the end of two or three months, although in men the chancre does not usually spontaneously heal so quickly. But there are indisputable cases in which a man has contracted a chancre in extra-marital relations, has had intercourse with his wife before he knew he was infected, and, when enlightened as to

the danger, has had her examined as often as four or five times in a month. Although the external genitals, vagina, and cervix have been examined with the greatest care and nothing has been found, yet secondary symptoms have appeared a few weeks later. In such cases Professor Gaucher not only has failed to find a chancre, but even any enlargement of lymphatic glands. His explanation is as follows. Chancre can exist only on the skin or on the mucous membranes covered with stratified epithelium, such as the mouth, prepuce, vagina, and anus, which are all derived from the skin. Rectal chancres may be urged as an objection, but Professor Gaucher thinks that these would be more correctly described as chancres of the upper part of the anus. All these surfaces are not absorbent of liquids, while the mucous membrane covered with columnar epithelium is. Professor Gaucher therefore suggests that in the cases of syphilis in women without chancre the virus is carried into the uterus. If impregnation takes place the woman, of course, is infected through the fœtus. But if it does not, she can still be infected—by absorption of the virus through the mucous membrane. These cases of "spermatic infection" show certain characteristics. Like conceptual syphilis, the disease remains latent or progresses slowly without any great outbursts, and manifests itself by late lesions. Thus a woman who had not suffered in any way previously showed gummata on the legs 30 years after marriage. The husband admitted that he had syphilis 10 years before marriage, but for a long time before marriage he had no ulcer or contagious lesion of any kind. Pregnancy never occurred. Another woman was seen for leucoplakia of the tongue, and a third for disseminated sclerosis with a similar history.

ECONOMY IN GLYCERINE AND SUGAR FOR MEDICINAL USE.

OUR readers know well enough the great national call there is on glycerine for the manufacture of munitions of war and also the shortage of sugar owing to reduced importation, and they will appreciate any information as to how these commodities may be spared by the use of substitutes which, in the majority of cases, may be made to serve the same purpose. It is well known, for example, that substances for which glycerine is ordinarily used as a solvent are usually sufficiently soluble for all practical purposes in other media, while chloroform water is an excellent sweetener as well as preservative. As a demulcent glycerine can be replaced by a number of mucilaginous substances available, while as a laxative the resources under this category are so numerous as to put glycerine out of court for the purpose, except, it may be, in very special circumstances. Similarly, as an ingredient of lotions and douches, other solutions, saline and alkaline, are equally effective. As regards sugar as a flavouring agent, it can be spared easily and replaced by chloroform water, aromatics, and other well-known agents which serve to mask disagreeable flavours. In regard to other drugs, in connexion with which it is well that caution should be observed, it may be noted that veronal, carbolic acid, paraldehyde, phenacetin, and phenazone are still in short supply, while atropine, lanoline, the salicylate group, and thymol are now being made in this country in considerable quantities. High prices, however, still prevail, and it is desirable that the use of these drugs, in the interests of economy, should be confined to urgent cases. Eucaine and novocaine are being manufactured on a substantial scale in this country, and these valuable drugs may be used with some freedom where their application is indicated.

DERCUM'S DISEASE: ADIPOSIS DOLOROSA.

TWO cases of this rare condition have recently been published in the Italian medical press, one by Dr. F. Alzona in *Il Policlinico* (Medical Section, Dec. 1st, 1916) and the other by Dr. A. Balliano in *Il Morgagni* (Archives, Nov. 30th, 1916). First described by Dercum in 1888, an American observer who drew attention to the two fundamental characteristics of the disease—increase of fat and painfulness; the symptom-group was amplified later on by Vitant with the addition of the following—muscular asthenia and psychical changes. Similar conditions had previously been described in this country by Baker and Bowlby in 1886. Some authors have stated that the condition is more frequent in women, but statistics are still uncertain, perhaps because patients in many instances do not suffer much from the disease, especially when the pain is bearable and the psychic disturbances do not exceed certain limits; the condition is discovered in most cases when medical advice is being sought for extraneous reasons. While non-painful adiposity is more often hereditary, Dercum's disease is always acquired and usually develops between the ages of 15 and 40 years, an onset before or after these ages being relatively infrequent. Two forms have been distinguished, the nodular and the diffuse; both patients, however, described by the two Italian observers belonged to the former category, both were males 26 and 38 years of age, and presented painful subcutaneous fatty nodules, chiefly on the thorax and thighs, varying in size from a grain of rice to a goose's egg, roughly symmetrical in distribution and painful not only on pressure but spontaneously. Neither case presented any conspicuous muscular debility, nor were any marked psychic changes noticed, albeit both men were rather apathetic and taciturn. Bioscopical examination of some of the tumours in both cases showed, in sections stained with osmic acid, Sudan III., and eosin-hæmatoxylin, apparently normal adipose tissue, surrounded by a thin connective-tissue capsule richly vascular, but, on the other hand, poorly furnished with nerve elements which were, however, free from any appreciable change. Three theories have been advanced to explain the pathology of Dercum's disease; they have had various advocates and may be summarised under three heads: (1) the nerve theory, which attributes the essential factor to a neuritis; (2) the theory of changes in the internal secretions, founded on alterations observed in the pituitary, thyroid, testicular, and ovarian glands; and (3) the theory of a dystrophy of the endocrine-sympathetic system. A sidelight is thrown on these theories by the cases described by Dr. Alzona. The patient had been an hystero-epileptic, presenting extensive sensory disturbances, and the beginning of the disease coincided with a period of his life when he was the subject of violent emotional crises. Moreover, experiments with a view to ascertain his reaction to adrenalin, atropine, and pilocarpine revealed the fact that whereas in the first two the reaction was negligible, in the case of pilocarpine it was very marked, characterised by increased cardiac pulsation, nausea, profuse salivation, and sweating. The theory of

an endocrine-sympathetic dystrophy is one which fits in best with the symptom-group of Dercum's disease. It is difficult to find an adequate explanation of the phenomena in abnormality of the thyroid or pituitary functions alone, and to bring fresh light on to this obscure question further pathological researches are needed with a view to investigate the functional of the nervous system on the one hand, and the endocrinic apparatus on the other.

RICHARD LIEBREICH.

Dr. Richard Liebreich, who died in Paris on Jan. 29th in his eighty-eighth year, was oculist to St. Thomas's Hospital, London, before Nettleship, but became a naturalised Frenchman more than 50 years ago. With the possible exception of Zehender, he was the oldest living oculist, his first contribution being in 1857 on the use of the ophthalmoscope, in a translation, published in Brussels, of William MacKenzie's great work on the eye. The longest of his own writings was on amaurosis and amblyopia in a dictionary of practical medicine published by Messrs. J. B. Baillière et Fils in 1864. Liebreich had some little reputation as a painter and sculptor, and a series of lectures on Turner and Mulready, delivered in the "eighties," was reprinted by Messrs. J. and A. Churchill.

THE ROYAL SOCIETY OF MEDICINE AND THE NAVAL AND MILITARY MEDICAL SERVICES.

WE have had frequent occasion to note that commissioned officers of the Naval and Military Medical Services are unaware of the cordial invitation extended to them by the Council of the Royal Society of Medicine to make free use, when in London, of the Society's Rooms, and to use the library for purposes of reading and reference. Rooms are set apart for writing, smoking, tea, conference, and dressing. They are further welcome to attend any of the numerous meetings which are held for papers and discussions, as announced from week to week in the medical press. The society's house (1, Wimpole-street, Cavendish-square, W.) is open from 11 A.M. to 6.30 P.M.

AT the Royal College of Surgeons of England next week Surgeon-General Sir George Makins will deliver (Wednesday, Feb. 14th) the Hunterian oration on Hunter's Influence upon Military Surgery; Professor J. Hutchinson will deal with Dupuytren's Contraction in his Hunterian lecture on Monday, Feb. 12th; and Professor W. Sampson Handley with Paget's Disease of the Nipple on Friday, Feb. 16th. In the following week Professor R. H. Elliot will deliver (Monday, Feb. 19th, and Wednesday, Feb. 21st) two Hunterian lectures on Couching for Cataract in India. The lecture hour in each case is 5 P.M.

THE LANCET, VOL. II., 1916: THE INDEX

OWING to the continued shortage in the paper-supply the Index and Title-page to the volume of THE LANCET which was completed with the issue of Dec. 30th, 1916, have been printed separately, and copies have been supplied gratis to those subscribers who have, up to Feb. 8th, intimated to us their wish to receive them. Other subscribers will be similarly supplied, so long as the stock remains unexhausted, on application to the Manager, THE LANCET Office, 423, Strand, London, W.C. Such applications should be sent in at once.

THE FOOD OF THE NATION.

BY EDMUND I. SPRIGGS, M.D. LOND., F.R.C.P. LOND.,
SENIOR PHYSICIAN, DUFF HOUSE, BANFF; LATE SENIOR ASSISTANT PHYSICIAN TO ST. GEORGE'S HOSPITAL AND DEAN OF THE MEDICAL SCHOOL.

THE manifesto of the Food Controller which was published on Feb. 1st was received by the press and people with much interest and enthusiasm. Lord Devonport asks the nation to confine itself to a measured quantity per head of three important foodstuffs, leaving it to the discretion of each housewife to make up the diet of the family with other materials. On the same day a White Paper was published, containing a Report on the Food-Supply of the United Kingdom[1] drawn up by a committee of the Royal Society at the request of Mr. Runciman, late President of the Board of Trade. The committee included the professors of physiology in the Universities of London, Glasgow, and Dublin, and the professor of bio-chemistry in the University of Cambridge. The first and second parts of the report are dated July, 1916; the third part bears date December, 1916.

The report is of great interest. It contains the statistics upon which we presume that the Ministry of Food based its deliberations, though no doubt more recent figures are now in their possession. The matter is of such importance, and especially to medical men, whose advice is being sought all over the country in the matter of diet, that it may be well to review the main features of the report before considering the manifesto.

Those who have read the small book on the food-supply of Germany[2] compiled by a committee of German professors, an abstract of which appeared in THE LANCET of Feb. 20th, 1915, or its translation by Dr. Russell Wells,[3] will recognise some familiar features in the White Paper, as is indeed to be expected. The differences are perhaps more interesting than the similarities, for the problem in Great Britain is not the same as the problem in Germany, either as regards the quantity or the nature of the foods concerned.

The report begins with an examination of the amount of food materials available for consumption by the population of the United Kingdom in the five years preceding the war, based upon figures supplied by the Board of Trade. The table shows the proportion of each food which was home-grown and the proportion which was imported. The total supply of food yielded an annual average of 51 millions of calories, which gives 3091 calories per head per day.

Children are, of course, included in the counting of heads, and in order to avoid confusion on this account the committee, as is done in the Elizbacher report, has calculated the population in terms of "men" on a scale which ascribes values to children according to their age, and regards a woman as eating four-fifths as much food as a man. In reckoning diet on this scale 100 men, women, and children, on the basis of their proportions in this country in the year 1911, are equal to 77 adult units or "men."

The food-supply per "man" is, therefore, greater than the food-supply per head. It works out, in the years 1909-13, at just over 4000 calories per "man" per day, made up of 113 grammes of protein, 571 grammes of carbohydrate, and 130 grammes of fat. An independent estimate by Professor W. H. Thompson (Appendix I. B.) gives substantially similar figures—namely, 3364 calories per "man" per day, with 111 grammes of protein, 549 grammes of carbohydrate, and 125 grammes of fat.

The committee set forth that the "dietary requirements of a nation for the most part engaged in active work ..... cannot be satisfactorily met on a less supply in the food as purchased than 100 grammes protein, 100 grammes fat, 500 grammes carbohydrate, equal approximately to 3400 calories per 'man' per day, a 'man' being an average workman doing an average day's work."

It appears, therefore, that the supply of food has not only met the national needs in the past, but has exceeded them, the margin of excess or waste being at least 10 per cent. in the case of protein and carbohydrate and as much as 25 per cent. in the case of fat.

[1] The Food-supply of the United Kingdom. Published by H.M. Stationery Office, 1917.
[2] "Die deutsche Volksernährung und der englische Aushungerungsplan," 1915, edited by Professor Paul Eltzbacher.
[3] English translation by S. Russell Wells, M.D., "Germany's Food, Can it Last?" University of London Press, 1915.

Before leaving this, the first part of the report, it is of interest and, indeed, of importance at the present time to take note of what share each kind of foodstuff contributes to the total caloric value of the food. The following figures in column 1 are taken from Table I. of the report, but their order is altered, those foods being put first which yield most energy. I add a column (2) showing what percentage of the total caloric yield is furnished by each.

Table Showing the Annual Yield of Calories of the Chief Classes of Foodstuffs in the Years 1909-13, with the Percentage of Total Energy Furnished by Each Class.

	Energy value. Millions of calories.		Percentage of total supply.
Cereals	17,712,000	.....	34·7
Meat	8,890,000	.....	17·4
Dairy produce (including lard and margarine)	8,253,000	.....	16·2
Sugar (including cocoa and chocolate)...	6,633,000	.....	13·0
Vegetables	4,812,000	.....	9·4
Cottage and farm produce not included above	2,655,000	.....	5·2
Fruit	1,077,000	.....	2·1
Fish	531,000	.....	1·0
Poultry and eggs, game and rabbits	461,000	.....	0·9
Total	51,024,000		99·9

The chief cereal foodstuff is, of course, wheat. It can be shown from the details in Appendix I. A that if other cereals are left out of account, 30·8 per cent. of the total energy is furnished by wheat alone.

A consideration of the table shows that in the five years preceding the war 61·2 per cent. of the total food value of the nation was provided by three foods alone—namely, wheat (30·8 per cent.), meat (17·4 per cent.), and sugar (13 per cent.). A further 25 per cent. was furnished by dairy produce and vegetables, whilst other foodstuffs, including fruit, fish, poultry, eggs, game, rabbits, and all cereals except wheat, furnished only 13·4 per cent. of the total food energy.

Part II. deals with the food supply during the war. After considering information furnished to them by the Board of Trade and the Board of Agriculture, and comparing the supply with the estimated population in 1916, the committee reported that the main foodstuffs, meat, wheat, fish and sugar, showed a small increase during the year ending June, 1916, as compared with pre-war conditions, and that they had no evidence that the supplies of other foods were diminished.

They point out, however, that "the needs of our armies, the decreased yield of the harvest at home in 1916, and possible interference with our supplies from abroad, may reduce the supply in future below this level." They lay also proper stress on the fact that "in buying food the labouring population is buying energy," and that "a slight reduction of food below the necessary amount causes a large diminution in the working efficiency of the individual."

An appendix dealing with Army rations shows that the troops are receiving a value of 4334 calories, which at the front, with extras, may be increased to 4644 calories, including 164 grammes of protein and 205 grammes of fat. This is, as it should be, a suitable and liberal allowance for those doing hard muscular work and exposed to cold.

In Part III. the committee discuss possible methods of economising the available food-supply. Their recommendations as to the milling of flour and the use of food materials in brewing have already in whole or in part been carried into effect. In a short appendix upon alcohol they point out that whilst alcohol in moderate doses is burnt in the body, it has "effects as a drug which cannot be ignored in appraising its value as a food," and that "repeated experience has shown that regiments not supplied with alcohol marched farther, and were in better condition at the end of the day, than others to which it had been given."

Further points of importance are suggested. A more economical production may be obtained by killing beef when it is younger; the best use of fodder, however, is not obtained by feeding bullocks, for three times the number of calories may be obtained per unit of fodder by feeding good cows for their milk or feeding pigs. A considerable gain of protein would also result if milk were used for making cheese rather than for making butter.

Turning now to the manifesto of Feb. 3rd, it is first to be noted that the quantities of the main foodstuffs recommended—namely, 3 lb. of flour, 2½ lb. of meat, and ¾ lb. of sugar—are for each head of the population per week, including children. In order to calculate how far they meet the needs of the body, we may convert the figures into quantities per "man." In the report of the Committee of the Royal Society the population in 1916 is estimated as 46·5 million, equivalent, at a man-value of 0·77, to 35·8 million adults or "men." If 4,000,000 men are subtracted as being fed from army rations the number of civilian "men" to be fed is 31·8 million, and the number of civilian heads is 42·5 million. The ratio between population and man value is therefore 42·5 : 31·8, and the allowance per "man" of the civilian population will be 4 lb. of flour, 3·34 lb. of meat, and 1 lb. of sugar. These are the full quantities for an adult man; a woman should have four-fifths of them and children somewhat smaller proportions according to their age. The share of a child between 6 and 9 years old would be half the adult quantities. Children over 13 need as much, on the average, as a woman.

The corrected allowance gives the following values per "man" per day:—

Food per week.	Food per day.					
lb.	oz.	Grammes	Calories.	Protein.	Carbohydrate.	Fat.
Flour, 4	9·1	258	939	29	194	3
Meat, 3½ ...	7·6	216	540	41	—	40
Sugar, 1	2·3	65	267	—	65	—
Total	...	...	1746	70	259	43

The figures used for the composition of flour are those in Appendix I. B. of the Committee's report. I have taken meat as containing protein 18·9 per cent., fat 18·5 per cent., giving 250 calories per 100 grammes. This is a fairly average figure for meat, whether beef, mutton, or lamb.

The dietary requirements of an adult are taken in the report, as mentioned above, to be 3400 calories with 100 grammes of protein per "man." We see, therefore, that the flour, meat, and sugar allowed by the manifesto supplies a little over one-half of the food which an average man doing work needs.

The ration contains a good proportion of protein; indeed, we need not consider protein further, for in an ordinary mixed diet, if the calories are sufficient, there is generally enough of it. Only when there is grave shortage of bread, meat, and milk, does the protein in a ration run low. The same may be said of fat. I have shown above that over 77 per cent. of the total food in the country in 1916 consisted of wheat, meat, dairy products, and sugar. These are the available foods, and their composition is such that if enough calories are supplied the proportion of protein and fat will be adequate, assuming a fairly equal distribution of foodstuffs.

If the diet is to be made up to the standard there remain to be supplied from other foods 1654 calories.

The common available foods from which the balance of the diet must be made up are: oatmeal, barley-meal, tapioca, sago, arrowroot, rice, eggs, fish, milk, butter, margarine, lard, cheese, potatoes, peas, beans, and lentils.

We can estimate roughly what quantities of other foods have been available up to the present by comparing the average annual amounts given in the report with the returns which the Government has just published [4] of the imports for 1916. If we assume, in the absence of other information, that the country is producing about the same quantity of food, or at all events not less than the average, the chief variation will be in imports.

By adding on the imports in 1916 to the average produced in former years an estimate has been made in the case of every one of the above foods. A proportion of these foods will be required, of course, for the Army, and in order to be on the safe side I have counted the army as containing 5 000 000 men. After subtracting their share the figures given in the table below were obtained.

The comparatively small quantity of maize is left out of calculation, as are fruits. Fruits furnished 2 per cent. of our

[4] Accounts relating to trade and navigation. H.M. Stationery Office, December, 1916.

supply of energy before the war, but the imported total exceeded greatly the total amount produced at home and we may suppose that they will be available in smaller quantities. Other vegetables than potatoes, beans, peas, and lentils are omitted as, though valuable in a diet, their food content is low.

These figures are not accurate. They are an estimate from such sources of information as are open to the public. But unless there has been a large increase in the production of these accessory foodstuffs it is improbable that their total value exceeds that given.

—	Estimated amount available for civilians—metric tons.	32,000,000 ÷365= grammes per day per man.	Calories.	Protein.	Carbohydrate.	Fat.
Oatmeal	168,500	14·4	59	2·3	9·7	1·0
Barley-meal ...	21,600	1·8	6	0·2	1·3	—
Rice	380,500	32·6	117	2·6	25·8	0·1
Fish	735,600	63·0	37	6·3	—	1·3
Eggs	173,100	14·8	20	1·8	—	1·4
Milk	3,892,000	333·0	237	11·0	16·6	13·3
Butter	194,300	16·6	132	0·2	—	14·1
Margarine ...	173,200	14·8	115	0·2	—	12·3
Lard	91,300	7·8	69	0·2	—	7·3
Cheese	140,200	12·0	47	3·0	0·3	3·6
Potatoes	3,449,000	295·0	202	5·3	43	0·3
Peas, beans, and lentils ...	18,400	1·6	6	0·4	1	—
			1047	33	98	55

We see, then, that the foods available in 1916, other than meat, flour, and sugar, after subtracting a due share of them for the Army, leave per "man" a value of 1047 calories, with 33 grammes of protein.

The meat, flour, and sugar allowed gives 1746 calories and 70 grammes of protein. Adding the two together—that is, the "allowance" foods and estimated quantity of other chief foodstuffs available per man—we get a total of 2793 calories, 103 grammes protein, 357 g. carbohydrate, and 98 g. fat. There remain to be added tapioca, sago, arrowroot, fruit—all of some value, but not enough to alter the total materially.

The calculation allows no margin for loss in distribution or for waste.

It would, of course, be easy in ordinary circumstances to add other foods to the fixed quantities of meat, flour, and sugar so as to make up a diet of 3400 calories or more, and to ensure that it shall contain plenty of each needful foodstuff. But the problem before us is not the dieting of a few individuals or even of a large group; it is the feeding of the nation. It appears likely that if all the accessory foodstuffs could, apart from other considerations, such as cost, be divided equally among us, there would not be enough to make up the daily ration to 3400 calories per "man."

It is true that a large number of people eat much less than 3400 calories. For the majority of adults with sedentary occupations the allowance, plus such a share of the remaining foods as my estimate gives, is enough or more than enough. But there are others who need more than 3400 calories, and these others include the great mass of workers whose continued and efficient activity is essential at the present time. The food requirements of workers have been long established. A modern illustration of what ordinary workers consume will be found in the interesting Memorandum by Dr Leonard Hill issued by the Ministry of Munitions.[5] A single meal frequently exceeds 1000 calories and may reach 1500, in net figures of the value of the meal as served, not as bought. Considerably more must be allowed for in buying the food. Further, men doing continuous severe labour may require well over 4000 calories. If the workers do not get enough food they cannot do the same work. A man may by grit or pluck work hard for a little while on a low ration, but he is living on himself and very soon his work will fail.

Meat and sugar are valuable foodstuffs, but their restriction does not matter so much as that of flour. More flour is needed, and every effort should be made, as no doubt it will be made, to ensure the supply at the expense of any other commodity, for none other is so vital.

Probably the most valuable food to import, after wheat, is fat, such as margarine, on account of its high caloric yield per unit of weight. So long as our stock of cattle and sheep is not depleted,[6] sugar comes next from a dietetic point of view. In addition to being a useful food, with no waste, it has the great advantage of rendering other foods palatable. Cheese, again, until we make enough of it at home, is good food to import; it has a high energy value and there is but little waste in its use.

We hope for a more abundant and economical food production, such as we are told might be effected by adjusting crops, producing more milk, making more cheese, and the like; but changes in the conditions of agriculture and of labour take time.

It cannot be said that our people have suffered from any shortage of food so far. They will welcome the energy and earnestness with which the matter is being approached, and will await with much interest such measures as may be necessary to continue to ensure a sufficient and equal distribution of food.

[5] Investigation of Workers' Food and Suggestions as to Dietary. L. E. Hill, M.B., F.R.S. H.M. Stationery Office. 1916.

[6] Agricultural Statistics, 1916, II., Part I., H.M. Stationery Office, 1917.

THE CONTROL OF VENEREAL DISEASES.

The Immediate Need of Compulsory Notification of Venereal Diseases for the Defence of the Realm.

UNDER this heading a correspondent who signs himself "M.O.," and who has undoubtedly given much time and thought to the question, writes to us as follows:—

I have recently had under my notice a case in which one woman, the wife of a soldier serving abroad, infected with syphilis three soldiers of the same battalion in the course of ten days. The police were communicated with, but are powerless in the matter unless the woman can be caught "soliciting," which, under the circumstances, is extremely unlikely—and there appears to be no remedy. At the present time compulsory notification *is* in force for men in the Army and Navy. All men suffering from venereal diseases are notified, sent to hospital, and kept there until cured. Surely there would be no injustice in extending the principle of notification and detention to women and to the rest of the population. But this notification should be limited to actively infective persons. No good would be done to compensate for the trouble involved in making syphilis in all stages compulsorily notifiable, but all women and men known to be a source of danger to the community and the State ought to be notified and sent to hospital until cured. This could be effected immediately under the Defence of the Realm Act.

We fully share our correspondent's desire to see immediate steps taken for the efficient treatment of all persons suffering from actively infective venereal diseases. The Royal Commission on Venereal Diseases also expressed this desire, and it is the working policy of the National Council for Combating Venereal Diseases which is helping to carry out the recommendations of the Commission. Our correspondent thinks that notification immediately put in force would help this policy. The Commission and Council thought otherwise, and have given reasoned arguments for their belief, which is shared by a large proportion of the active workers for venereal control. Put briefly, they hold that until skilled treatment is freely placed at the disposal of the venereal patient, and until he has been educated to believe in its value, compulsion will only drive him to concealment and the tender offices of the quack. But the quack will shortly be reduced to impotence, while the value of preventive measures is rapidly becoming better known.

The Remuneration of Female Medical Officers for Treatment Centres.

At a meeting of representative medical women's societies held on Jan. 27th attention was drawn to the following facts: (1) That at least one advertisement, appearing in both the lay and medical press, for a female medical officer under a local scheme for the treatment of venereal diseases, offered a salary considerably lower than that offered to the male medical officer; and (2) that apparently the female medical officer was not to have charge of the female beds.

The following resolution was passed :—

That this meeting feels it to be a matter of urgent importance that, under any local venereal scheme, a medical woman should be appointed at an adequate salary, to have charge of the women's clinic and the women's venereal beds.

We have not seen the advertisement to which allusion is made, but we recall a passage in the city of Liverpool scheme in which it was proposed to offer a female non-resident clinical assistant a salary of £100, compared with £250 for the male assistant, "on the ground that the man's work will be more than double that of the woman's." Equal pay for equal service is a principle to which we believe the medical profession would generally assent.

Treatment of Venereal Diseases in Honolulu.

In the *Military Surgeon* for December last Captain L. C. Mudd, a member of the Medical Corps, U.S. Army, relates his methods for treating venereal disease in Honolulu. Gonorrhœa cases are kept in bed from the first, are given a four-hourly injection of 1 per cent. protargol into the anterior urethra, low diet, and a vaccine of gonococci—25 millions on the first day, the dose being repeated every other day and each time increased by 25 millions till 200 millions are reached. These injections are, the writer believes, useful in preventing or aborting the complications. In cases of syphilis he aims to attack the treponema as quickly as possible, and gives an injection of salvarsan directly the diagnosis is clear (0·6 gm. suitably dissolved in 15 c.c. distilled water intravenously). Patients are not laid up, and no awkwardness has occurred. The injection is repeated weekly for three weeks more, and then 1 grain of salicylate of mercury is injected hypodermically over the ilium weekly for four weeks, when three weeks' rest is given. Subsequent treatment is regulated by the Wassermann reaction. This scheme of treatment has often prevented secondary eruptions, and during eight months no primary case so treated has been followed by roseola. A soldier who recently, in the first stage, refused treatment, was sent by court-martial to hard labour for six months. There has since been no trouble in securing the routine attendance of patients at the proper time.

The London Hospital Medical College.

Demonstrations on the methods of administering salvarsan substitutes will be given in St. Anthony's ward of the hospital on Tuesdays at 1 o'clock.

Enlightenment Campaign.

In his public lecture on Social Prevention at the Picton Hall, Liverpool, on Jan. 26th, Professor J. M. Beattie said that Liverpool had not awaited the report of the Royal Commission to take action, but had for some time past through its health committee undertaken the investigation of venereal diseases in children. He expressed the opinion that the Commission's recommendations would not be crowned with full success until venereal diseases were made compulsorily notifiable.—Lord Sydenham, presiding on Jan. 31st at a lecture delivered before the Royal Institute of Public Health by Dr. C. J. Macalister on the Prevention and Arrest of Venereal Disease in Man, expressed the hope that legislation dealing with quacks and quack advertisements would soon be forthcoming, and also for the protection of the medical man from action for libel in connexion with information given in the public interest. Dr. Macalister said that he regarded education as the first weapon for use in the service of prevention and as a necessary preliminary to notification.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

Fleet-Surg. E. B. Townsend is placed on the Retired List, with rank of Deputy Surgeon General.

To be temporary Surgeons: E. M. Atkinson, A. A. Cockayne, D. G. Churcher, M. Pearson, W. V. Gabe, J. G. Stevens, C. J. L. Blair.

ROYAL ARMY MEDICAL CORPS.

Capt. (temp. Major) J. Bruce to be temporary Lieutenant-Colonel whilst commanding a Field Ambulance.

Capt. R. A. Preston, Spec. Res., to be Lieutenant and to be granted the temporary rank of Captain.

Temp. Lieuts. John H. Thornley and R. O. Whyte to be temporary Captains.

Capt. W. L. Aplin Harrison, R.A.M.C., Spec. Res., to be Lieutenant, and is granted the rank of temporary Captain.

Temporary Captains relinquishing their commissions: A. G. Henderson, R. Sinclair, and G. Melville, T. S. Brodie, and R. M. Boyd (on account of ill-health).

Temp. Lieuts. Edward A. Seale and G. Kennedy relinquish their commissions.

SPECIAL RESERVE OF OFFICERS.

Officers relinquishing their commissions: Capt. R. Hay, on appointment to Indian Medical Service, Capt. J. F. van der Westhuyzen, Lieut. (on probation) C. R. Sandiford (on account of ill-health).

To be Captains: Lieuts. J. Alston, J. J. B. Edmond, A. McM. Paterson, R. D. Cameron, W. J. F. Craig, W. L. Ingham, C. Rudd, M. Foster, J. Bennet, A. K. Gibson, B. J. Ryrie, J. M. Smellie, D. G. Stoute, J. A. C. Guy, C. W. Dudley, J. A. Nicholson, H. G. Broadbridge, W. Corner, R. R. Powell.

To be Lieutenants: N. S Tirard, T E. Micklem, R. A. Woodhouse, E. R. W. Gilmore (from University of London Contingent O.T.C.).

TERRITORIAL FORCE.

Major A. H. Burgess is seconded whilst holding a temporary commission in the R.A.M.C.

To be Captain: Lieut. W. Rutherford.

Capt. L. D. B. Cogan to be acting Lieutenant-Colonel whilst commanding a field ambulance.

Capt. A. Cuffe resigns his commission on account of ill-health.

DEATHS IN THE SERVICES.

Colonel Thomas Holbein Hendley, C.I.E., I.M.S., on Feb. 2nd, at his residence, St. John's Wood, in his 70th year. He entered the Service in 1869, and was for 24 years Residency Surgeon at Jaipur, and for a few years Administrative Medical Officer for Rajputana. In 1897 he became Inspector-General of Civil Hospitals in the United Provinces, and subsequently, until his retirement in 1903, was the Permanent Inspector in Bengal.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS.

In the January issue of this journal there appears the first instalment of the report of an inquiry by Lieutenant-Colonel C. W. Wenyon and Captain F. W. O'Conner into some problems affecting the spread and incidence of intestinal protozoal infections of British troops and natives in Egypt, with special reference to the carrier question, diagnosis and treatment of amœbic dysentery, and an account of three new human intestinal protozoa. There is also a report by Captain Martin Flack on Cerebro-spinal Fever in the London District from December, 1915, to July, 1916, in which the author lays stress on the value of wide swabbing on the appearance of the disease and the early elimination of carriers of the active organism. Captain R. V. Dolbey gives his experiences in the treatment of gunshot wounds involving the knee-joint, and Lieutenant-Colonel Alfred J Hull his experiences in gunshot wounds of the spine, while Temporary Lieutenant E. D. Adrian contributes the beginning of a paper discussing the electrical reactions of muscles before and after nerve injury.

URBAN VITAL STATISTICS.

(Week ended Feb. 3rd, 1917.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate population estimated at nearly 18,000,000 persons, the annual rate of mortality was equal to 18·7, against 16·2 and 17·0 per 1000 in the two preceding weeks. In London, with a population of more than 4,000,000 persons, the death-rate was 19·8, or 1·4 per 1000 in excess of that recorded in the previous week; in the remaining towns the rate ranged from 11·4 in Hornsey, 11·7 in Dewsbury, and 11·9 in South Shields, to 29·1 in Bootle, 31·0 in Exeter, and 31·2 in Bath. The principal epidemic diseases caused 265 deaths, which corresponded to an annual rate of 0·8 per 1000, and included 83 from infantile diarrhœa, 82 from measles, 62 from diphtheria, 23 from whooping-cough, 12 from scarlet fever, and 3 from enteric fever. With the exception of enteric fever, the deaths from each of these diseases were in excess of the average in the three preceding weeks; measles caused a death-rate of 1·1 in Plymouth and West Ham, 1·5 in East Ham, and 4·6 in Wimbledon. The 818 cases of scarlet fever and the 1430 cases of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital were respectively 7 and 40 in excess of the numbers at the end of the preceding week. Of the 6198 deaths from all causes in the 96 towns, 225 resulted from violence. The causes of 72 of the total deaths were uncertified, of which 16 were registered in Birmingham, 10 in Liverpool, 6 in Manchester, and 5 in London.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual death rate was equal to 17·7, against rates declining from 19·6 to 16·9 per 1000 in the six preceding weeks. The 364 deaths registered in Glasgow corresponded to an annual rate of 17·0, against 19·8 per 1000 in London, and included 10 from whooping-cough, 4 from measles 3 each from diphtheria and infantile diarrhœa, and 1 from scarlet fever. The 103 deaths in Edinburgh were equal to an annual rate of 16·2 per 1000, and included 2 each from whooping-cough and diphtheria and 1 from infantile diarrhœa.

Irish Towns.—The 201 deaths registered in Dublin were equal to a rate of 26·3, or 3·6 per 1000 higher than that recorded in the previous week, and included 4 from measles, 2 from infantile diarrhœa, and 1 each from whooping cough and diphtheria. In Belfast the 195 deaths corresponded to an annual rate of 25·9, and included 3 from infantile diarrhœa and 2 each from measles and whooping-cough.

BRISTOL EYE HOSPITAL.—At the recent annual meeting of the Bristol Eye Hospital, the Lord Mayor (Dr Barclay Baron) presiding, the medical report was presented showing 456 in-patients and 9269 out-patients treated during 1916. There was an adverse balance of £487 on the year's financial statement. The committee recorded their gratitude for the readiness with which the honorary staff had carried on without a house surgeon.

Correspondence.

"Audi alteram partem."

SPIROCHÆTOSIS ICTERO-HÆMORRHAGICA.

To the Editor of THE LANCET.

SIR,—In a letter in your issue of Feb. 3rd Dr. A. F. Hurst suggests that the name spirochætal jaundice should be given to the disease hitherto called Weil's disease, including the various forms of epidemic jaundice which have occurred in the French war area and elsewhere. The name has been recently under the consideration of the subcommittee of the Royal College of Physicians of London engaged upon the Nomenclature of Diseases, now overdue.

May I point out that the name proposed by Dr. Hurst and by Sir Bertrand Dawson[1] is not distinctive. The jaundice of relapsing fever is a spirochætal jaundice, and the rare jaundice of secondary syphilis is obviously spirochætal also. In course of time it is quite conceivable that we may find other spirochætes troubling the liver or the blood in the same way.

What is the objection to the name spirochætosis icterohæmorrhagica? It is rather long, and that is all. It was used by the Japanese discoverers of the organisms, and hence it has a certain title to respect. It has been used by Captain A. Stokes and Captain J. A. Ryle in September in the *British Medical Journal* and in January in THE LANCET. The name spirochætosis is on the lines of the names of other diseases based on the organism, and is no longer nor more ugly than some others—e.g., trypanosomiasis, bilharziasis, leishmaniasis, aspergillosis. The name is adopted as an alternative to relapsing fever in one of the "Military Books published by Authority"—namely, "Memoranda on Some Medical Diseases in the Mediterranean War Area" (p. 104).

But, of course, syphilis is a spirochætosis; it might be called S. luetica. Relapsing fever wants a qualification when it is called spirochætosis; it might be Obermeieri. If there are national or patriotic objections, recurrens might be tried, unless it is objected that the much-discussed jaundice is also recurrent. Framboesia is a spirochætosis; it might be called S. tropica, only that framboesia is sufficiently distinctive.

Can any shorter qualifying word than ictero-hæmorrhagica be found? It might be S. japonica in reference to its discoverers, or S. gallica, if it be granted that the disease was first described by French authors. But, on the one hand, the French writers certainly did not find the spirochæte, and, on the other hand, the name would recall associations of the other spirochætosis which would not be desirable. As the paper recording the discovery of the spirochæte in March last is written by five Japanese authors, the qualification by means of the discoverers' names would be even more cumbrous than that which we have in spirochætosis ictero-hæmorrhagica.—I am, Sir, yours faithfully,

FREDERICK TAYLOR,
London, W., Feb. 5th, 1917. Chairman of the Committee.

THE PHENOMENA OF ANAPHYLAXIS.

To the Editor of THE LANCET.

SIR,—In reply to several letters which have been addressed to you in connexion with my paper in your issue of Jan. 20th, may I point out that it should be read in the light of the first paragraph, where my object in writing it is distinctly defined. At the present time many practitioners are called upon to administer antitoxic sera, while they have no time to study the question of anaphylaxis nor, in many cases, the inclination to expend the energy necessary in wading through the voluminous literature of it. Their ideas, therefore, are necessarily somewhat hazy, and it appeared worth while to attempt to outline the subject as concisely and clearly as possible, and so to afford a basis on which they could work. I have in consequence been forced to confine myself to the general rule, neglecting to a great extent the exceptions thereto. That such exceptions are met with I think is clearly indicated in the paper itself, and in sending it to you I anticipated, apparently mistakenly, that the impossibility of giving, within rigidly fixed limits, the quantities of antigen necessary in all circumstances to produce all or any of the phenomena of anaphylaxis was sufficiently emphasised. I am convinced, however, that my description represents the facts as accurately as is at present known, and indicates the way in which almost to eliminate the danger of anaphylaxis.

The object of the paper also rendered undesirable the inclusion of many of those details for which Dr. A. S. Leyton asks in his letter in your issue of Feb. 3rd. During the last three months I have seen over 200 serum-treated cases in this hospital alone with three slight cases of anaphylaxis. All these latter had previously received a total of 10 c.c or more of serum, and in all a period of more than 14 days had elapsed between the ultimate and penultimate injections. Moreover, a series of injections at comparatively long intervals (7 to 10 days) has never caused hypersusceptibility; those cases that reacted had all received a series with short intervals (1 to 2 days). In no case in my series has sensitisation been effected by 3 c.c. or any amount remotely approaching it, although 3 c.c has been a sufficient toxogenic dose. All of these cases I have carefully observed, and I hope at the termination of my present work to place the details of them on record.

For the figures given in my paper I make, and made, no claim to absolute accuracy, for that is not yet possible; the statement, however, that 4 to 5 c c. of serum are required to form a toxogenic dose for a guinea-pig is in agreement with the findings of most workers, and the appearance of anaphylactic shock after 4 to 5 minims is certainly not common. Further, as regards the giving of antigen by the mouth, the statement that such never produces anaphylaxis is explained by the first paragraph of this letter. The possibility of its very rarely doing so is a natural deduction from the previous statement that in certain conditions where the permeability of the walls of the alimentary canal is diminished unchanged antigen may be absorbed, and is, moreover, expressly noted in the footnote referring to the passage in question.

While, however, on the one hand I am so definite as to be obviously wrong, Dr. Frederic Thomson, on the other hand, in his letter in your issue of Jan. 27th (for which I thank him) finds me so indefinite as to be difficult to follow. From what has already been said it is evident that the question of the sensitisation of man is still involved in the greatest obscurity, and my want of precision in the definition of dosage is almost impossible to avoid in existing circumstances. I shall nevertheless venture to indicate by figures what roughly is implied by some of the terms used in my paper. Observation of experiments shows that if a number of animals be taken and each given a single injection of antigen, the second receiving more than the first, the third more than the second, and so on, no hard-and-fast line can be drawn between the effects produced by any two of the series; the intensity of such effects appears to form a curve rising from zero to a maximum, whence it falls again, probably never to zero, but always approaching that point. One is thus reduced to the necessity of a more or less arbitrary division into "small," "considerable," and "massive" doses. As stated in the article referred to, I consider anything below about 5 c c. a small dose and as effecting no sensitisation, but what dose can be called considerable—i.e., sufficient to sensitise—cannot be so definitely stated and certainly varies in different individuals. I believe that from 15 to 30 c.c. fairly represents it. Anything over 50 c.c. will constitute a massive dose. Small doses, therefore, will have been received by those persons who have suffered one or two prophylactic injections (I speak here, of course, only from the point of view of tetanus); considerable doses by those having three to six, or perhaps ten; and massive by those who have had a larger number of prophylactic or one or more therapeutic doses. Where a number of injections has been given the size of any particular member of the series is of little consequence, the total quantity is the essential factor provided that each injection be made within 10 to 14 days of the preceding; and, of course, the amount of antibodies contained in the serum has no influence whatever on the production of anaphylaxis.

Referring to my statement that any person who has received one or more injections more than 14 days previously must be considered anaphylactic, the contradiction between

[1] Quarterly Journal of Medicine, vol. x., Nos. 37 and 38, October-January, p. 90.

it and the above is apparent rather than real. I have never found one or two small doses sensitise a man, but that such a result *never* follows is more than I am prepared to affirm. Therefore, to be on the safe side it is recommended that such person be assumed to be hypersensitive.

I am afraid that I cannot give complete assent to Dr. Thomson's remarks concerning the rashes seen in serum disease, for my experience differs from his. I am at the time of writing completely separated from all my notes, so can give no figures as to the frequency with which I have observed the various eruptions, but a circinate rash has never come under my observation; the great majority have been urticarial with an extremely rare erythematous or morbilliform appearance.

Dr. M. B Arnold's letter in your same issue is of great interest, and apparently the possibility of a laryngeal œdema should be borne in mind in human anaphylaxis. The details of the condition can, however, be worked out only by observation of anaphylaxis in man, for skin eruptions are not exhibited by laboratory animals. In any case it must be rare, for, so far as I am aware, no other such case has ever been recorded, and as a rule the symptoms point very definitely to an obstruction in the bronchioles and in no way suggest any lesion in the upper respiratory tract. I am of opinion that tracheotomy is not justifiable except in extremity.

With Dr. W. W. C. Topley I am in entire agreement when he says in his letter in your issue of Feb. 3rd that many cases occur which appear hard to reconcile with many of our present ideas concerning the mechanism of anaphylaxis, although I cannot see that his Case 1 offers any such difficulty. Such an experiment is essentially the same as that which forms the basis of Friedberger's theory of anaphylaxis—viz., that it is due to anaphylatoxin produced by the action of a specific antibody upon its antigen and the injection of anaphylatoxin engenders anaphylaxis without any preliminary sensitisation.

I further agree with Dr. Topley that there is evidence pointing to the fact that there is a cumulative element in the condition and have pointed out such possibility in answer to Dr. Thomson above (which was written several days before receipt of Dr. Topley's letter). But there would appear to be a difference between the condition brought about by a series of doses at short intervals and that of a sensitive person who has received a single subminimal injection; at any rate, such a difference is possible, for while the former may be due to a cumulative effect the latter cannot be so explained. As a matter of fact, it is known that in the immunisation of an animal the antigen may in some cases still be demonstrable unchanged in the blood some time after the last injection, but the amount gradually decreases and finally disappears. Thus in the case supposed of a single subminimal dose administered to a sensitive person no antigen is present in the body, and on receipt of the subminimal dose there is not sufficient anaphylatoxin liberated to produce symptoms, but a certain amount of antibody is fixed (negative phase) and complement as well; the animal is thus desensitised. In the case, however, of a continuous series of injections the quick succession of them more than possibly causes the persistence of antigen in the blood, until finally so much remains that on injection of even a small additional amount anaphylatoxin is produced in such quantity as to become manifest by symptoms. All such ideas are, of course, highly theoretical, but serve to show that the two conditions may be, and in my opinion probably are, quite different. A wholly satisfactory theory is as yet far from being demonstrated, and it appears likely that it will remain so until the principles of physical chemistry have been much further elucidated and have found a wider application to biological problems.

I am, Sir, yours faithfully,

Fort Pitt, Chatham, Feb. 3rd, 1917. S. WYARD.

PNEUMATIC TOURNIQUETS.

To the Editor of THE LANCET.

SIR,—I was pleased to read in your issue of Jan. 27th the appeal of my friend, Professor K. H Digby, for the more general use of pneumatic tourniquets. From a surgical point of view such a tourniquet must be admirable. My own use of the sphygmomanometer as a tourniquet is for venepuncture for any purpose. In neurological work it is useful most commonly for the intravenous injection of "606" and "914," but it is adapted equally well for the withdrawal of venous blood. The armlet is readily applied and the air can be pumped into it until the radial pulse is just not obliterated. In this way the maximum obstruction to the venous circulation is effected, without abolition of the arterial flow. When the puncture has been made the armlet can be deflated without causing the slightest movement of the patient's arm.

For several years I have used the portable sphygmomanometer known as the "Tycos" with very satisfactory results. I am, Sir, yours faithfully,

HILDRED CARLILL, M.A., M.D. Cantab., M.R.C.P. Lond.,
Feb. 1st, 1917. Neurologist to the Royal Naval Hospital, Haslar.

LEAKAGE OF "NEURO-ELECTRICITY" AS A CAUSE OF TRENCH FOOT.

To the Editor of THE LANCET.

SIR,—In your issue of Jan. 13th Lieutenant C. Nepean Longridge quotes experiments which he has made with a view to showing that the condition known as "trench foot" is brought about by an undue leakage of some form of natural electrical energy from the extremities. Assuming his observations to be correct, they no doubt do show that a loss of what has been provisionally called neuro-electricity takes place under the conditions which obtain, or used to obtain, at the front during winter. They do not in themselves prove, however, that such loss is the cause of the pathological changes which occur. Neither, however, does the immunity of coolies in rice-fields disprove the theory. Heat regulation in warm-blooded animals is a complex process, for the proper working of which the integrity of the nervous system is, among other things, necessary. If this heat-regulating mechanism be artificially interfered with the animal experimented on quickly dies—*unless means are taken to keep up its body heat by regulation of the external temperature.* In the case of the coolie the temperature of the water is nothing like so low as it is on the Western front in the winter. Moreover, the coolie is inured to the work from childhood, and the adaptive power of the nervous system is well known.

It may be accepted that "loss of neuro-electricity" is not the *direct* cause of trench foot; but that the loss, if it occurs, interferes with the local nervous mechanism for heat regulation is not improbable. It is a well-known fact that limbs with a damaged nerve-supply due to gunshot injury become blue, congested, and even ulcerated if exposed to a degree of cold which would not affect them normally; whereas in really warm weather—or even for a short time after a hot bath—their appearance is natural. Low external temperature, in short, does not affect a limb injuriously so long as the heat-regulating mechanism is capable of maintaining the normal internal temperature. But the balance may be adversely disturbed either (*a*) by a degree of external cold sufficient to overcome the normal arrangements—e.g., frost-bite; or (*b*) by a less degree of cold acting upon an enfeebled mechanism. Oiling the feet is certainly of value. It does not appreciably "keep the cold out," but may conceivably "keep electricity in." The success of such a measure is therefore a point in favour of Lieutenant Longridge's hypothesis.

I am, Sir, yours faithfully,

FRANCIS HERNAMAN-JOHNSON.

Cavendish-square, W., Jan. 30th, 1917.

THE GLYCOSURIA ASSOCIATED WITH MENINGITIS.

To the Editor of THE LANCET.

SIR,—The case of suppurative meningitis with coma and glycosuria reported in THE LANCET of Feb. 3rd by Dr. F. E. Taylor and Captain W. H. McKinstry renders the following observations of interest. In two cases of epidemic cerebro-spinal meningitis recently under our care in the London Fever Hospital we took the opportunity to examine the urines and the cerebro-spinal fluids for glucose from the onset of the disease. We found that during the first three days the urines contained small amounts of glucose, but that this substance was completely absent from the cerebro-spinal fluid. After the third day, when the acute invasive

symptoms were subsiding, the reverse was the case. The osazones were prepared from these fluids and were characteristic of glucose. Both cases proved fatal. In a third case recently under the care of one of us, temporary glycosuria was present in the early stages of a relapse. This relapse terminated in hydrocephalus and also proved fatal.

Some time ago Dr. Archibald Garrod drew attention to the fact that glycosuria was not infrequent in the terminal stages of tuberculous meningitis. Our cases were all meningococcal and the glycosuria, instead of being terminal was initial and transitory. In this respect they correspond more closely with the case of suppurative meningitis reported in your columns, and it seems unfortunate that in this the cerebrospinal fluid was not bacteriologically examined during life.

Our cases are too few for us to attempt to base any evil prognostic importance on this early glycosuria in cerebrospinal meningitis. As regards the occurrence of acetonuria this is so common in acute specific fevers where the constitutional disturbance is of any severity that it is deprived of any special significance.

We are, Sir, yours faithfully,

CHARLES R. BOX,
THOMAS G. NICHOLSON.

Feb. 5th, 1917.

THE ABNORMAL SIZES OF OFFICIAL PUBLICATIONS.

To the Editor of THE LANCET.

SIR,—The Stationery Department of the War Office from time to time issue pamphlets for the guidance of medical officers. I would like, through the courtesy of your columns, to make the following suggestions for future issue of these pamphlets.

They should be of a uniform size, with a margin for notes; perhaps, on the whole, "quarto" size would be the best form, failing that "octavo" size. I have on my desk at the present moment pamphlets varying in size from foolscap to booklet ($5\frac{1}{2} \times 4$). As most of these pamphlets are of considerable value in helping the medical officer to be up to date, it is desirable they should be so "made up" that they could be bound together and form a standard work of reference. At the present time it is found that they are read, perhaps only glanced at, and put away—not to be found when wanted. This I attribute in part to the "make up," which does not lend itself to any standard system of filing or binding.

I am, Sir, yours faithfully,

Jan. 30th, 1917. MED. SERVICES.

*** We sympathise whole-heartedly with our correspondent. The War Office publications only offend in the same way as all official publications. The sizes and shapes of the Reports of Medical Officers of Health and of the authoritative documents from all the great departments are bewilderingly varied, making comparative reference and convenient housing impossible.—ED. L.

THE PRE-WAR MEDICAL OFFICER (S.R.) AND (T.).

To the Editor of THE LANCET.

SIR,—May I through the medium of THE LANCET draw attention to the following points?

1. (*a*) The consolidated rate of pay of the new-joined temporary officer R.A.M.C. is approximately equal to the total pay and allowances of the Special Reserve and Territorial *Captain* The former is either new-qualified or has had opportunities to minimise his losses; the latter has in many cases, if he was called up on mobilisation, to support wife and family *solely* upon his pay and allowances. The rise in the cost of necessaries at home presses hard upon families now. (*b*) The Special Reserve officer who joined in the early days of its formation received £20 kit allowance on joining. The war has now lasted two and a half years. The cost of kit has risen. The medical officer who has served with an infantry regiment in winter trenches on the Somme offensive has got through much clothing since the war began! (*c*) The Special Reserve or Territorial officer if wounded loses the greater part of his allowances; the "temporary" maintains his consolidated rate of pay. (*d*) The "temporary" is entitled to a fortnight's leave on the renewal of his contract without prejudice to his consolidated pay. The Special Reserve or Territorial officer gets but his 8 or 10 days' leave, and is liable to deduction of allowances.

2. The following suggestions are made:—(*a*) Any Special Reserve or Territorial officer, R.A.M.C., who has not less than two years' active service abroad, shall, upon completion of *six* years' service, commence to draw the pay and allowances of a Captain, R.A.M.C., of *seven* years' service. (*b*) Any Special Reserve or Territorial officer with not less than two years' active service abroad, of which not less than one year has been with an infantry regiment in the line, shall be eligible for a kit gratuity equal to the difference between the amount of his kit allowance on joining and £50. (*c*) Any Special Reserve or Territorial officer shall draw his full pay and allowances during such time as he is unfit for duty by reason of wounds received in action. All the above to be retrospective.

3. It is submitted: (*a*) that the principal cases of hardship would be alleviated; (*b*) that the number of such cases is sufficiently small to render the charge upon the public not great enough to militate against the adoption of the above suggestions.—I am, Sir, yours faithfully,

Jan. 25th, 1917. IN ARDUIS.

Obituary.

HENRY HUMPHREYS, M.A., M.D. CANTAB., M.R.C.P. LOND.

Henry Humphreys, who died at Richmond on Jan. 16th at the age of 72, was a man of brilliant talents, who, had it not been for his weak health, might well have attained great distinction. He was the son of Mr. Charles Humphreys, an architect. Educated at the City of London School, Henry Humphreys proceeded to St. John's College, Cambridge, where he graduated as Fifth Wrangler, proceeded to the M.A. degree in 1870, and became a Fellow of his college. He studied medicine at University College, London, qualified in 1872, took his M.D. in 1875, and the M.R.C.P. in 1877. In 1873 he joined the Middlesex Hospital, where, after holding the posts of house physician and obstetric house physician, he was appointed medical registrar, and prepared the interesting and carefully compiled reports for 1875 and 1876. In 1877 he married a daughter of Dr. E. Duncan, and in the same year went to reside at Manchester, having been appointed physician to the Pendlebury Hospital for Sick Children. He threw himself *con amore* into his new duties, and had already given promise of good scientific work, when, under unforeseen trials, his health broke down, and he was compelled to resign office after three years' tenure and abandon a career for which he was eminently fitted. For the next ten years he practised as a physician at St. Leonards, where he was attached to the hospital, and after that for five years at Fleet, and finally at Torquay, whither he removed in 1898. Here for another decade he spent a quiet and industrious life, not overburdened with practice, and taking much interest in the Natural History Society and Museum, of which he was president. His last work was to prepare an elaborate study of mosses for a meeting at Launceston, where the first symptoms of another breakdown occurred, which necessitated his retirement from active work, and from which he never entirely recovered. For nine years he was devotedly tended by his wife. He died after a few days' illness from heart failure.

Dr. Humphreys was a man of fine character, modest and retiring, and thoroughly unselfish. During his hospital life he proved to be a shrewd observer, keen and enthusiastic in the pursuit of clinical medicine. It was a disappointment to his London friends, as it must have been to himself, that his career at Manchester was so abruptly cut short from no fault of his own.

AN important informal conference between representatives of various Government departments and public bodies was recently held under the chairmanship of Lord Balfour of Burleigh, when a proposal by the medical adviser to the Insurance Committee for the County of London for a national scheme for the after-care and employment of tuberculous persons was discussed. A small committee was nominated to consider what further action should be taken in the matter.

The War.

THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue :—

Died.

Capt. B. D. Gibson, Australian Light Horse, who was acting as a combatant officer, qualified in Ireland in 1904, and had held public appointments in Dublin and in Cape Colony.

Wounded.

Capt. C. H. Lilley, R.A.M.C.
Lieut. Balkrishna, I.M.S.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men must be added to our lists of those who have fallen during the war :—

Major J. E. Moir, Indian Cavalry Staff, Cavalry Brigade, youngest son of the late Dr. Moir, of St. Andrews, N.B.

Second Lieut. E. E. Brannigan, West Yorks Regiment, son of Major J. H. Brannigan, R.A.M.C., of County Mayo, Ireland.

Transport Officer J. E. McElfatrick, only son of Dr. J. McElfatrick, of Alderley Edge, Cheshire.

Capt. M. G. Donahoo, M.C., King's Own Yorkshire Light Infantry, only son of the late Dr. T. M. Donahoo.

Lieut. R. J. Graves, Royal Irish Rifles, elder son of the late R. W. Graves, F.R.C.S., J.P., of Gloucester.

OBITUARY OF THE WAR.

CHARLES EDWARD RECKITT, L.M.S.S.A. LOND.,

SURGEON, ROYAL NAVY.

Surgeon C. E. Reckitt, who died on Jan. 20th as a result of illness contracted on active service, was 30 years of age and the elder son of Lieutenant-Colonel J. D. T. Reckitt, R.A.M.C. He was born at Bellary, India, educated at Bedford Grammar School and Berkhamsted School, entering at Guy's Hospital for his medical study in 1905. Qualifying in 1913, he was assistant house surgeon at his own hospital and held the post of ophthalmic house surgeon at the Hull Royal Infirmary. In April, 1915, he joined the Royal Navy, leaving Haslar a month later on his appointment to H.M.S. *Shannon*. He was senior surgeon on this boat when, at the beginning of December last, he developed cellulitis of the forehead. After several operations osteomyelitis of the frontal bone was succeeded by a subdural abscess and he was transferred to Haslar Hospital where he died. Surgeon Reckitt's personal qualities are well described by a hospital intimate : "I first came across Surgeon Reckitt," he writes, "in the swimming-bath, where I was struck by his neat, well-knit figure and his good diving, which won many prizes at the 'Guys' water sports. Later on he was dresser to Mr. Philip Turner and a member of Sir Alfred Fripp's firm. To us he was always 'Charles'; no surname seemed to be necessary, for he was the life and soul of any firm he was on. Quick and alert, merry and jovial through the longest night's work, he seemed tireless and full of energy in the small hours when no one is supposed to be a hero. With his patients he was painstaking and careful, but he added to his treatment a kindly word and a most infectious smile that will make him remembered for many a day."

Surgeon Reckitt married in July last Madeleine Violet, younger daughter of Mr. de Quetteville, of Jersey.

FRANK ERNEST ROCK, M.D. LOND., D.P.H.,

SURGEON, ROYAL NAVY.

Surgeon F. E. Rock was one of two Naval surgeons aboard H.M.S. *Laurentic*, which went down off the Irish coast on Jan. 25th. After a brief career as a student at Middlesex Hospital, from which, in 1893, he graduated with honours in medicine and obstetric medicine at London University, taking his doctorate in the following year, Dr. Rock was for a time assistant medical officer at Huddersfield, leaving in 1908 to organise the medical work amongst the 14,000 children in the public elementary schools of Edmonton, where, four years later, he became assistant medical officer of health and assistant school medical officer. In his early days, after a period of private practice in Hammersmith, he had served in the Royal Navy, and as a member of the Special Reserve of Officers was called up when the British Fleet was mobilised in July, 1914, and again for active service the following month. He worked hard, at first at Chatham Naval Hospital, later on board H.M.S. *Wallaroo*, before joining H.M.S. *Laurentic*, on which he lost his life, his colleague, Surgeon W. P. Starforth, being rescued. A colleague of Surgeon Rock's writes of him : "His modest bearing and unassuming manner made him a host of friends wherever he went, and by all of these his death will be deeply regretted."

PERCY ARNOLD LLOYD-JONES, B.A., M.B., B.C. CAMB., D.S.O.,

MAJOR, ROYAL ARMY MEDICAL CORPS.

Major P. A. Lloyd-Jones, who was killed in action in France on Dec. 22nd last at the age of 40 years, was son of Mr. E. Lloyd-Jones, of Abbotshill, Great Malvern, formerly of Sale. Educated at Manchester Grammar School, he graduated at Cambridge in 1898, going on to St. Bartholomew's Hospital for his clinical studies, qualifying M.R.C.S. & L.R.C.P. Lond. in 1904. After a house appointment at Bedford County Hospital he entered the Royal Army Medical Corps at once, becoming Captain in 1908 and Major in 1915. He had seen a variety of service, as he volunteered as a private in the Yeomanry during the South African War, being awarded the Queen's medal with three clasps and entering Pretoria with Lord Roberts. On his return he was made honorary member of the borough of Cambridge. Later, when stationed at Malta, he rendered assistance at the Messina earthquake and was decorated with the Red Cross medal and the Order of the Crown of Italy. He went over to France in the early days of the present war, was appointed to the command of a field ambulance with the temporary rank of Lieutenant-Colonel, and became Deputy Assistant Director of Medical Services. He was twice mentioned in despatches and received the D.S.O. in June last. His death was due to a chance shell which hit him when busied with work just behind the firing line.

Major Lloyd-Jones is described by his commanding officer as an exceptionally brilliant staff officer and an honourable, upright, and hard-working official. His life

record shows a remarkable range of activities at home and abroad, while letters which we have seen speak of his sense of duty and love of home and children. A wide circle of friends will mourn their loss.

THE HONOURS LIST.

The following promotions of and awards to medical officers are announced:—

C.B.

Col. (temp. Surg.-Gen.) G. D. Hunter, C.M.G., D.S.O., A.M.S.; Lt.-Col. P. B. Baig, I.M.S.

D.S.O.

Maj. (temp. Lt.-Col.) W. Benson, R.A.M.C.; Lt.-Col. (temp. Col.) F. E. Gunter, R.A.M.C.; Lt.-Col. (temp. Col.) C. A. Johnston, C.I.E., I.M.S.; Capt. G. J. Keane, R.A.M.C.; Lt.-Col. (temp. Col.) G. W. Tate, R.A.M.C.; Lt.-Col. R. J. Turner, I.M.S.; Lt.-Col. H. A. Moffat, S. Afr. Med. Corps; Temp. Lt.-Col. C. H. Muller, S. Afr. Med. Corps; Lt.-Col. W. B. Skinner, S. Afr. Med. Corps; Lt.-Col. J. H. Whitehead, S. Afr. Med. Corps.

Military Cross.

Capt. R. S. Kennedy, I.M.S.; Capt. C. V. Thornton, R.A.M.C.; Capt. H. Fayle, S. Afr. Med. Corps.

MENTIONED IN DESPATCHES.

The *London Gazette* publishes a lengthy list of additions to and corrections in the names of those mentioned in recent despatches, and the following affects the lists published in THE LANCET:—

Mesopotamia (THE LANCET, July 8th, 1916, p. 79).—Add the name of Major W. C. Croly, R.A.M.C.

Mediterranean (THE LANCET, July 22nd, 1916, p. 163).—Under the heading of "Royal Army Medical Corps," for Major W. Jones read Major W. W. Jones (T.F.); for Capt. R. Robeson read Capt. R. Robinson T.F.).

British Army in France (THE LANCET, Jan. 13th, p. 83).—Under the heading of "Canadian Army Medical Corps," delete the name of Major E. H. Baylock (not a *medical* officer).

THE MOBILISATION OF THE MEDICAL PROFESSION.

Mr. Neville Chamberlain, the Director-General of National Service, made on Tuesday last a statement as to the direction in which his plans might be expected to mature so as to obtain from the general population services of all kinds. In the course of his address he said:—

There are two classes which stand apart from the rest of the community, because their services are required in particular directions. I refer to doctors and ministers of religion. So far as the clergy of the Church of England are concerned, I have been in communication with the Archbishops, and we have formulated plans which I hope will enable many clergy to give effect to what I know to be their desire, and to offer themselves for national service other than that connected with their parishes. They will be put to do work of a special character, perhaps in different parts of the country. As to doctors, I have been in touch with the General Medical Council, and, although my plans are not yet completed, I hope it will be possible for me to arrange something for them on analogous lines. We have to see that the doctors are so mobilised and distributed that the needs of both the civil population and the Army can be met, and that, so far as possible, specialists can be put to do the work for which they have taken pains to fit themselves. With those exceptions, I am going to appeal to the whole male population of this country between the ages of 18 and 61.

Readers of THE LANCET will not be surprised at learning the decision of the Director-General of National Service to treat the medical profession as one whose utility to the nation is so special along definite lines that any attempt to use its personnel outside medical lines must be bad economy. On the other hand, the life of the medical practitioner is necessarily so intimately bound up with the fortunes of those among whom he lives that mobilisation of the medical profession, in the strict sense of the word, must be far more difficult for all concerned than it would be in connexion with any other occupation.

The Director-General of National Service will find the medical profession considerably prepared for the economising of man power and the distribution of work which he proposes to bring about. The Central Medical War Committee has since its foundation been impressed with the necessity, while discharging its primary duty of finding officers for the military and naval services, of arranging that the medical practice of the country, both in public departments and in individual undertakings, shall proceed with due efficiency and with the minimum of inconvenience or distress to the public. The Central Committee in a communication to the Local Medical War Committees (now being issued) asks those Committees to submit the names of all men of military service age in their areas, pointing out that a great strain must shortly fall on the remaining members of the medical profession, and that medical services will have to be cut down to the really essential basis. The military authorities have a legal claim on the services of every man of not more than 41 years of age at the dates appointed by the Military Service Acts, and the Central Medical War Committee indicates that the public must be prepared to do with less medical attendance, just as they are having to acquiesce in many other forms of shortage.

It is understood that the Insurance Commissioners are informing the Insurance Committees throughout the country that they must be prepared to deal promptly and effectively with the demands that will be made upon them for the release of all practitioners under contract with them who can be spared, and the coöperation of the National Insurance Commission with the Central Medical War Committee has been throughout of an encouraging and remarkably efficient character. The Central Medical War Committee is advising the Local Medical War Committees that in every area the action of local authorities with regard to the medical men under contract must depend on the extent to which the local profession can show hearty coöperation. The authorities have the duty of providing certain medical services, and are expected to pay the practitioners under contract with them during their absence on military service; but these emoluments cannot be continued unless the work is carried out by someone. Fully recognising this, the Central Medical War Committee is suggesting to the Local Medical War Committees the methods by which the manpower of each area can be minimised, while satisfying the local authorities in their legitimate demands. The institution of coöperative central arrangements is proposed, whereby patients may attend at central surgeries, or whereby groups of doctors may undertake in common the attendance of all patients in one particular area, and it is to be hoped that the public will be ready to fall in with all such plans. The public support will certainly be given more readily by as much as those who work the local practices as substitutes are able to do so from those premises where the medical services had been previously rendered. It is obvious that much can be done to lessen night and emergency calls by an arrangement whereby one or two men in an area should be on duty on certain nights or at certain times.

The Central Medical War Committee goes, in its suggestions, further than anything which Mr. Neville Chamberlain was able at the time to say in public, for every medical practitioner who is capable of doing any medical work at all is considered by the Committee to be liable to be called upon to do what lies in his power.

THE ARTIST AT THE FRONT.

The second instalment of the *Western Front*, which is published under the authority of the War Office by "Country Life," Limited, and George Newnes, Limited, contains 20 further illustrations by Mr. Muirhead Bone, and it is our impression that the scenes in this issue may make a more popular appeal than those which appeared in the first instalment. The special qualities of the artist are wonderfully exemplified in such pictures as No. 29, "British Troops on the March to the Somme"; No. 32, "Wrecked Aeroplane near Albert"; and No. 34 "Watching our Artillery Fire on Trones Wood." This picture, drawn from Montauban most graphically depicts a battlefield where artillery fire has been heavy, craters being massed together as the result of high-explosive shells following with great frequency. Little imagination is necessary to realise how, at a later stage in bombardment, these craters, like pits in confluent smallpox, overlap, making the shelled ground become soft and loose; the illustration really, if remotely, indicates some of the difficulties with which our troops have to contend. "A View Outside Arras," No. 38, could only have been drawn by an artist with real feeling as well as dexterity, and none save those quite unfamiliar with the real objects of the black-and-white draughtsman will be betrayed into thinking that its slapdash execution shows any lack of care or design. In No. 24, "Taking the Wounded on Board," Mr. Muirhead Bone gives us an example of his well-known skill in the drawing of buildings; and

this is more definitely displayed in 21, "A View of Amiens Cathedral," a wonderfully elegant and airy presentation, with aeroplanes flitting round the *flèche*, and in 37, "A Gateway at Arras," a vigorous piece of impressionism. An exhibition of the original drawings has now been opened at the galleries of Messrs. Colnaghi and Obach, 144, New Bond-street, W.; it is held on behalf of public funds for the prosecution of the war.

AUXILIARY R.A.M.C. FUNDS.

Lieutenant-Colonel F. W. H. Davie-Harris, R.A.M.C., secretary of the Auxiliary R.A.M.C. Funds, 124, Victoria-street, S.W., sends us the following statement and encloses a list of donations received for the year 1916 for the Officers' Benevolent Branch of the above funds:—

The committee of the above funds are now prepared to receive and consider applications for assistance from the guardians of orphans in straitened circumstances of officers of the Auxiliary R.A.M.C. (the Special Reserve, Territorial Force, and the New Armies) who are eligible, their fathers having been killed in action, died of wounds or disease contracted in the service, or have held their commissions in the Auxiliary R.A.M.C. during the present war.

The object of the Officers' Benevolent Branch is to afford relief to those orphans of commissioned officers who may be left under circumstances of peculiar distress or who may be enabled by a small addition to their incomes, at a certain period of their lives, to procure a better education than their limited means would otherwise admit.

As the committee expect to receive a large number of applications, it is hoped that all those officers who have not yet become subscribers will kindly do so and so help, with timely assistance, to give a start in life to the orphans of their brother officers.

List of Donations received for the Officers' Benevolent Branch of the Auxiliary R.A.M.C. Fund during the Year 1916.

(Donors of £15 15s. become Life Members under Rule 11.)

	£	s.	d.
Anderson, W. B., Lieut.	1	1	0
Angus, H. B., Lieut.-Col.	5	5	0
Armstrong, F. G., Capt.	2	2	0
Arnison, W. D., Major	3	3	0
Abrahams, R. J., Major	5	5	0
Alderson, W. E., Capt.	2	2	0
Anonymous	3	0	0
Appleton, O. L., Major	1	1	0
Atkinson, Ambrose, Dr.	5	0	0
Buckley, T. W., Major	10	10	0
Barling, H. G., Lieut.-Colonel, C.B.	50	0	0
Bradford, Sir J. Rose, Colonel, K.C.M.G., C.B.	5	5	0
Bannatyne, J. A., Lieut.-Colonel	5	5	0
Barr, Sir James, Lieut.-Colonel...	10	10	0
Brook, W. F., Major ...	52	10	0
Buzzard, E. F., Captain	5	5	0
Blackwell, A. S., Capt.	5	5	0
Bolam, R. A., Lieut.-Colonel	3	3	0
Blake, V. H., Captain...	2	2	0
Beattie, T., Lieut. Col.	5	5	0
Broad, B. W., Major ...	11	11	0
Brooks, Walter, Lieut.-Colonel	3	0	0
Buckley, C. W., Major	1	1	0
Butcher, W. Herbert, T. Surgeon R.N. ...	5	0	0
Bagshawe, Arthur, Dr.	2	2	0
Barrett, A. Kepple, Esq.	2	2	0
Barrett, Mary, Miss ...	1	1	0
Bower, David, Dr. ...	5	5	0
Bennion, J. M., Dr. ...	2	2	0
Batt, Bernard E. A., Captain	5	0	0
Bethell, Stanley E., Lieut.	2	2	0
Collier, W., Lieut.-Col.	52	10	0
Crawford, Douglas, Captain	10	10	0
Coates, William, Colonel	5	5	0
Crawford, D. G., Lieut.-Colonel	5	0	0
Clarke, P. S., Captain	2	2	0
Cory, E. J. T., Major...	10	10	0
Cook, John E., Captain	3	3	0
Cohen, Abraham, Dr....	2	2	0
Cooke, E. S., Dr.... ...	3	3	0
Cox, Alfred, Dr.	1	1	0
Coles, Charles C., Dr....	5	0	0
Charlesworth, F., Major	5	5	0
Crawford, Raymond, Dr.	2	2	0
Clarke, J. Michell, Lieut.-Colonel	3	3	0
Droop, C. E., Captain...	2	2	0
Dalton, Norman, Lieut.-Colonel	5	5	0
Douglas, Claude, Lieut.-Colonel	5	5	0
Duke, A., Dr.	5	5	0
Donald, Archibald, Capt.	5	5	0
Davidson, P., Major ...	2	2	0
Dobson, Leonard C., M.D.	3	3	0
Dewar, W. J., M.D. ...	2	2	0
Dick, F. A., Captain ...	5	0	0
Darlow, F., Captain ...	1	1	0
Ellwood, Captain... ...	5	5	0
Evers, C. J., Esq. ...	2	2	0
Farquharson, A.C., Maj.	20	0	0
Grey, Edgar, Captain	5	5	0
Gibbons, Arthur P., Lieut.	3	3	0
Gourlay, W. B., Captain	2	0	0
Gowans, T., Lieut.-Col.	10	10	0
Gibbs, T., Lt. & Qr.-Mr.	1	1	0
Griffith, A. Hill, Major	20	0	0
Gardner, H. Willoughby, Dr.	5	5	0
Given, J. C. M., Dr. ...	5	5	0
Gibbs, S. R., Major ...	1	1	0
Gardner, A. F., Dr. ...	10	0	0
Hamilton, D. L., Lieut.-Colonel...	5	5	0
Hawkins, H. P., Lieut.-Colonel	5	0	0
Haslam, W. E., Lieut.-Colonel...	6	6	0
Harkness, W. T., Capt.	3	3	0
Holt and Co., Messrs ...	105	0	0
Hay, S. H., Captain ...	5	5	0
Hay, A. G., Lieut.-Col.	10	10	0
Hunt, Mary, Dr	2	2	0
Hurry, J. B., Dr.... ...	2	2	0
Hinds, Frank, Dr. ...	2	2	0
Hurst, A. F., Lieut.-Colonel	10	10	0
Jones, W. W., Major ...	1	1	0
Kendrick, H. H., Capt.	5	0	0
Kelly, A. Brown, Capt.	10	10	0
Key, Richard, Dr. ...	2	2	0
Kennedy, Dr. Foster, New York	20	0	0
Laham, Arthur, Capt.	1	1	0
Littlejohn, H., Major...	5	5	0
Lickley, J. D., Captain	1	1	0
Leach, J., Major	5	5	0
Livingstone, T. H., Capt.	3	3	0
Lyle, R. P. Rankin, Major	5	5	0
Lewis, Cyril, Major ...	3	3	0
Lunn, W. E. C., Capt.	5	0	0
Liley, J. A. Captain ...	4	4	0
Leonard, R. C., Captain	2	2	0
Lucas, Albert, Major ...	5	5	0
Lane, Sir W. A., Lt.-Col.	52	10	0
Laurie, James, Captain	3	3	0
Lynden, Arnold, Dr. ...	10	0	0
Lapage, C. P., Captain	5	5	0
Laing, G. D., Dr.... ...	5	5	0
Lindsey, C. D., Captain	1	1	0
Mansell-Moullin, C. W., Lieut.-Colonel	2	2	0
Maclean, Ewen, Major	21	0	0
Mills, T. J., Captain ...	3	3	0
Makins, Sir G. H., Surg.-Gen., K.C.M.G., K.C.V.O.	10	0	0
Macintosh, D. J., Major, C.B., M.V.O. ...	5	0	0
Mours, T. K., Major ...	10	10	0
Middleton, G. S., Lt.-Colonel	10	10	0
Menzies, J. A., Captain	1	1	0
Murray, P. J., Lieut. ...	1	1	0
Mackay, E., Captain ...	4	4	0
Martin, A. M., Lt.-Col.	5	5	0
MacDermott, W., Lieut.	10	10	0
Manfield, A. H., Capt.	5	0	0
May, Otto, Dr.	5	5	0
Mieville, G. C. B., Dr.	5	5	0
McAfee, D. J., Captain	1	1	0
Medical Insurance Agency	50	0	0
Martin, H. C., Captain	2	2	0
Macfarlane, J., Captain	1	1	0
Neligan, G. E., aptain	3	3	0
Osler, Sir William, Lieut.-Colonel Bart.	10	10	0
Oliver, H. Gordon, Captain	5	0	0
Per Sir William Osler, Lieut.-Colonel, Bart.	140	0	0
Pasteur, F. M., Lieut.-Colonel...	5	5	0
Pitt, G. Newton, Major	2	2	0
Patterson, D. Wells, Major	5	5	0
Parkins, A., Major ...	5	5	0
Pybus, F. C., Major ...	3	3	0
Penny, F. S., Colonel ..	5	5	0
Pratt, R., Lieut.-Colonel	2	2	0
Page, Dennis S., Captain	5	5	0
Pellew, E. I. P., Capt.	10	10	0
Paulley, Legge, Dr. ...	4	0	0
"J. G. P."	4	0	0
Roe, R. W. E., Lieut.-Colonel, D.S.O. ...	4	4	0
Rich, V., Captain ...	5	5	0
Rowlands, R. P., Capt.	5	5	0
Richardson, W. G., Lieut.-Colonel	5	5	0
Russell, J. W., Major	5	5	0
Rowcroft, G. F., Colonel	10	0	0
Robertson, A. C., Capt.	1	1	0
Smith, H. H., Captain	5	0	0
Slater, B. H. Captain	1	1	0
Seymour, W., Captain	2	2	0
Slade, H. J., Captain ...	3	3	0
Slight, J. D., Major ...	10	10	0
Spriggs, N. L., Captain	2	2	0
Sedgwick, H. R., Capt.	5	5	0
Slesser, T. S., Captain	1	1	0
Smith, J. W., Lieut.-Col.	10	10	0
"Sigma"	6	6	0
Short, T. Sidney, Major	5	5	0
Stirling, R., Major ...	5	5	0
Stirling, Miss...	2	2	0
Stobie, W., Captain ...	5	5	0
Southam, F. A., Lt.-Col.	5	5	0
Smith, R. Pye, Esq. ...	2	2	0
Singer, Charles, Capt.	5	5	0
Thorne, Atwood, Surg.-Col., V.D.	5	5	0
Tooth, H. H., Col., C.M.G.	5	5	0
Toogood, F. S., Major...	1	1	0
Thomson, R., Captain..	2	2	0
Taylor, H. H., Captain	5	5	0
Telford, E. D., Captain	26	5	0
Thomas, P. G., Captain	6	5	11
Tirard, Sir Nestor, Lt.-Col.	5	5	0
Turner, W., Captain ...	5	5	0
Turner, G. G., Major ...	5	5	0
Thomson, A., Esq., M.D.	4	0	0
Turner, C. Byron, Major	2	2	0
Vachell, H. R., Lt.-Col.	5	5	0
Westmacott, F. H., Lieut.-Colonel ...	21	0	0
Woodrow, J. B., Capt.	5	0	0
Walsh, Leslie H., Capt.	3	3	0
Wickens, H. F., Capt....	10	10	0
White, W. Hale, Lieut.-Colonel...	32	10	0
Warrington, W. B., Captain	5	5	0
Webb, Cholmondeley, Captain	10	10	0
Weir, Hugh B., Captain	10	10	0
Wheeler, H. L. D., Lieut.	1	1	0
Wilson, W. Frank, Capt.	5	5	0
Wild, Robert B., Major	5	5	0
Winkfield, Alfred, Esq., F.R.C.S.	5	5	0
Widson, Howard, Esq.	2	2	0
Wear, A. E., Lieut.-Col.	1	1	0
Young, A., Captain ...	15	0	0
Yates, R. B., Captain ...	5	0	0

THE DIRECTOR-GENERAL OF THE ARMY MEDICAL SERVICE AND THE ARMY COUNCIL.

Lord Esher, in a letter to the *Times*, has warmly advocated inclusion in the Army Council of the Director-General of the Army Medical Service, and this would be a step which all medical men would recognise to be in the right direction. No one wishes to encumber the Army Council with too many representatives, but the progress of this war has shown us over and over again that it is difficult for a military officer to perceive the difficulties which must arise in a specialised and technical department. Yet unless the difficulties are perceived the remedies cannot be arrived at. The bestowal by the King on Sir Alfred Keogh of the high distinction of the Grand Cross of the Bath is a public acknowledgment of the way in which the Royal Army Medical Corps, supported from the outset by the efforts of the medical profession as a whole, has discharged its onerous work, and Lord Esher's appeal to the Secretary of State for War further to recognise this work by a mitting the Director-General of the Army Medical Service to the Army Council is a very just piece of argument.

HOSPITAL MAGAZINES.—Everyone would rejoice if Lieutenant-Colonel Fayrer, the Commanding Officer of the 2nd Scottish General Hospital, should prove prophetic in his foreword to the February issue of the *Craigleith Hospital Chronicle* (Edinburgh, price 6*d.*), for he believes that it will be the last foreword he will be asked to contribute. The contents of the paper are of the creditable standard of its predecessors.—The February issue of the *Gazette of the 3rd London General Hospital* (Wandsworth, price 3*d*) announces the return of Lieutenant-Colonel Bruce-Porter, C.M.G., as officer commanding, Lieutenant-Colonel Sir Alfred Pearce Gould, K.C.V.O., having filled the post in his absence. Most of the contents of this issue relate to the Christmas festivities, the illustrations being excellent.—We have also received No. 2, Vol. I., of the 5th, the magazine of the General Hospital

bearing that number (price 3*d.*). It is a satisfactory production, modelled somewhat on the style of the *Gazette of the 3rd London General Hospital*. In the article entitled "In Defence of the R.A.M.C." the author points out that the Corps has its full quota of heroes who have earned distinction for deeds of self-sacrificing devotion—a thesis which no one will deny.

HEADQUARTERS Southern Command have accepted the services of Mr. John R. Ridston as honorary consulting ophthalmic surgeon to the Plymouth garrison.

THE St. Dunstan's Hostel for blinded sailors and soldiers has benefited to the extent of £5000 devoted by Messrs. Kidder, Peabody, and Co., of New York and Boston, for the relief of sufferers from the war.

RELATIVES visiting sick and wounded sailors and soldiers have been granted the concession of single fare at the old rate for the double journey on the production of the hospital authorisation.

ULSTER VOLUNTEER FORCE HOSPITAL.—On Feb. 2nd the Duchess of Abercorn opened a new wing in connexion with the Ulster Volunteer Force Hospital, Belfast, which is to be devoted to the care of limbless patients and those needing special joint treatment. Mr. A. B. Mitchell has been appointed to take charge of the patients by the War Office, with the rank of temporary Lieutenant-Colonel.

Medical News.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—As the result of the Final Examination held from Jan. 9th to 24th the following candidates were approved in the undermentioned subjects, but are not yet eligible for the diplomas:—

Medicine.—G. Adler, London; H. D. Apergis, Guy's; D. N. Basu, Calcutta and University College; H. R. Bickerton, Cambridge and Liverpool; A. H. Boon, Northwestern University, Chicago; Marian Noel Bostock, St. George's and Royal Free; J. B. Brash, Cambridge and St. Bartholomew's; I. Braun, St. Bartholomew's; C. J. Chesterman, Bristol; H. J. C. Churchill, St. Bartholomew's; A. M. Clement, St. Thomas's; J. C. Collins, London; W. T. Cooper, Charing Cross; R. S. Corbett, Cambridge and St. Bartholomew's; G. R. Cowie, Oxford and Middlesex; W. L. Dandridge and S. R. E. Davies, Cambridge and St. Bartholomew's; W. A. Drake, Leeds and St. Bartholomew's; F. S. Echols, Bowdoin University; J. H. Ewen, St. Mary's; J. Fairbrother, Cambridge and London; H. Gainsborough, Cambridge and St. George's; M. W. Geffen, University College; G. H. Gidlow-Jackson, Cambridge and London; E. H. Glenny, St. Bartholomew's; R. F. S. Gordon, Cambridge and St. Bartholomew's; J. W. H. Grice, Guy's; H. O. Gunewardene, King's College; D. V. Halstead, Guy's; Joan Hardy, Royal Free; L. B. Hartley, Cambridge and St. Thomas's; K. R. Hill, University College; H. W. H. Holmes, Cambridge and St. Thomas's; J. C. C. Howe, Guy's; J. W. D. Hyde, University College; Loiza Johnston, American Medical Missionary College; J. I. Kuhne, Charing Cross; H. W. Lewis, Middlesex; E. E. Llewelyn, Cambridge and St. Bartholomew's; L. G. Lunnon, Middlesex; B. Maclean, University College; N. H. S. Maelzer, Guy's; W. H. Maudling, University College; L. C. Moore, Liverpool and St. Thomas's; C. K. Mowll, London; C. P. Nagamuttu, Ceylon and Middlesex; T. M. Payne, Cardiff and St. Bartholomew's; A. H. Pearce, Cambridge and St. Thomas's; A. M. Pickup, Birmingham and University College; C. V. Pink, St. Thomas's; W. I. F. Powell, London; H. N. Pritchett, Guy's; H. E. Rhodes, Cambridge and London; A. Rose-Innes, University College; A. H. Samy, St. Bartholomew's; J. J. A. Scott Birmingham; R. Sinha, London; E. D. Speckman, Cambridge and St. Bartholomew's; M. B. R. Swann Cambridge and King's College; J. F. Twort, London; W. J. Walters, Cambridge and Guy's; P. Ward, Sheffield; F. E. G. Watson, St. Bartholomew's; H. G. Watters London; W. H. White, St. Thomas's; and J. H. Wiseman, A. F. Wyatt, and S. Yablevitz, London.

Midwifery.—A. L. Abel, University College; H. C. Apperly, Middlesex; H. W. Archer Hall, Birmingham; H. S. Baker, St. Bartholomew's; Ruth Balfour, Royal Free; Alethea Josephine Bolton, Birmingham; Marian Noel Bostock, St. George's and Royal Free; R. W. Bowell, Guy's; I. Braun, St. Bartholomew's; A. G. Brett, Liverpool; H. B. Bulten, Cambridge and St. Bartholomew's; G. T. Calthrop, Cambridge and London; D. Cameron, St. Bartholomew's; H. Carpenter, University College, B. R. Chaudhri, St. Mary's; A. B. Cocker, Guy's; J. C. Collins and G. W. Coombs, London; C. G. Coombs, Guy's; A. J. Copeland and R. Coyte, St. Bartholomew's; C. Depla, Louvain and University College; H. L. Douglas and W. Kidinow, London; M. Erian Cairo; S. Finkelstein, Charing Cross; J. W. H. Gilee Guy's; Grace Mary Gulston Griffith, Cardiff and Leeds; F. Harrington, Guy's; F. J. Harvey, Birmingham; F. Y. Hasaballa, St. Thomas's; C. B. Henry, Westminster; L. G. Higgins, Cambridge and St. Thomas's; T. C. Higgins, St. Bartholomew's; S. L. Higgs, Cambridge and St. Bartholomew's; J. Hollings, London; G. R. Hubbard, Guy's; Loiza Johnston, American Medical Missionary College; D. M. Jones, London; S. Kadinsky, Brussels and Westminster; J. G. Lawn, Cambridge and St. Thomas's; H. W. Leatham, Cambridge and St. Thomas's; L. K. Ledger, St. Bartholomew's; A. W. Lewis, St. Mary's; D. J. A. Lewis, London; Marguerite Frances Jane Lowenfeld, Royal Free; G. E. MacAlevey, St. Mary's; P. D. J. Milanius, Middlesex; R. S. Millar and J. O. R. Montocchio, Guy's; A. Moore, Manchester and Birmingham; C. K. Mowll, London; Annie Shortridge Mules, Royal Free; W. W. Newton, Birmingham; W. D. Nicol, St. Bartholomew's; J. M. Parry, Charing Cross; H. C. Prys-Jones, Cardiff and St. Mary's; R. E. Rampling, St. Thomas's; P. Randall, Cardiff and St. Mary's; Gwendolen Mary Rolfe and Sarah Sophie Rosenberg, Royal Free; J. Rowland, St. Thomas's; K. J. Rustomjee, Liverpool; J. F. Ryan, St. Thomas's; S. Sacks, London; J. J. A. Scott, Birmingham; G. R. Sharp, London; S. C. Shaw - Middlesex; M. O. Simpson and K. L. Singer, Middlesex; B. L. Skegg, St. Bartholomew's; E. E. R. Spurway, Birmingham; H. J. R. Surrage, Cambridge and King's College; R. Theron, London; A. R. Tothill, Charing Cross; R. E. S. Webb, Middlesex; A. G. E. Wilcock, Cambridge and St. George's; W. G. Woolrich Cambridge and St. Thomas's; A. F. Wyatt, London; G. Zacharian, Smyrna; and I. H. Zortman, London.

Surgery.—P. A. Ashcroft, Manchester; D. C. Beaumont, Cambridge and London; W. T. Beswick, Cambridge and St. Thomas's; A. H. Boon, Northwestern University, Chicago; R. D. Bowser Cambridge and University College; C. C. Chesterman, Bristol; G. F. Cobb, St. Bartholomew's; E. J. Coombe, St. George's; P. G. S. Davis, St. Thomas's; H. Gainsborough, Cambridge and St. George's; M. Gourevitch, Paris and London; Grace Mary Gulston Griffith, Cardiff and Leeds; H. W. H. Holmes, Cambridge and St. Thomas's; C. Hunt, Bombay and Middlesex; O. H. Hyman, St. Thomas's; Eleanor Joyce Partridge, Royal Free; R. E. Rampling, St. Thomas's; D. W. R. Richardson, Cambridge and London; and F. F. Tisdall, Toronto.

UNIVERSITY OF BRISTOL.—At the Second Examination for the Degrees of M.B., Ch.B. (Part I.), held recently, the following candidates were successful:—

Khai Way Chan, William Lorymor Cossham, Nan Susan Jolie Roberts, and Marjorie Wadsworth.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee, held on Jan. 9th, 12 cases were considered, and £112 voted to 10 of the applicants. The following is a summary of the cases relieved:—

Widow, aged 63, of M.R.C.S. Eng. who practised in Suffolk and Cambridge, and died in 1904. Left quite unprovided for and until recently earned a bare income by acting as nurse-companion. About four months ago became ill, and is now suffering from paralysis, and the small amount saved is almost exhausted. Voted £12 in 12 instalments.—Widow, aged 75, of L.S.A. Lond., who practised in Bermondsey, and died in 1887. Applicant managed up to the commencement of the war by keeping a boarding-house on the south-east coast, but has had to close it down, and is still responsible for various charges against the house. Two children, who help all they can. Relieved once, £15. Voted £12, in 12 instalments.—L.R.C.P. & S. Edin. aged 59, a widower, who practised in Dumbartonshire and is now suffering from spastic paralysis. Only income a pension from the National Hospital of £20. Has one son, who is training for a dentist, and whose fees have been provided by the Fund and Guild. Relieved 12 times, £144. Voted £12 in 12 instalments.—Widow, aged 60, of L.R.C.P. Irel. who practised at Buckley and died in 1905. Applicant was totally unprovided for, and had been an invalid for many years and unable to work. One daughter married and unable to help. Only income a pension from an insurance of £25. Relieved nine times, £108. Voted £12 in 12 instalments.—Widow, aged 37, of M.R.C.S. Eng. who practised at Rhyhill and Swansea and died in 1914. Applicant was left unprovided for, and is suffering from mitral stenosis and unable to help herself. One daughter, now eight years old. Applicant lives with her mother, whose means are very limited. Relieved twice, £24. Voted £12 in 12 instalments.—Widow, aged 54, of M.R.C.S Eng. who practised in Devonshire, and died in 1914, and was an annuitant of the Fund. Applicant was left without means, and finds it very difficult to obtain suitable work on account of ill-health and age. One daughter, aged 22, who is in domestic service. Relieved four times, £28. Voted £12 in 12 instalments.—Daughter, aged 50, of M.R.C.P. Lond. who practised in London and died in 1900. Applicant lost practically all her income through a defaulting trustee, and has now only £16 per year. Her health is very precarious. Her mother, who was helped by the Fund, has recently died. Relieved three times, £40. Voted £18 in 12 instalments.—Widow, aged 63, of L.R.C.S. Edin. who practised on the West Coast of Africa and died in 1907. Was left unprovided for, and has recently had an operation for gall-stones and gastric ulcer. Has three children, all abroad and unable to help. Relieved five times, £80. Voted £12 in 12 instalments.—Daughter, aged 64, of M.R.C.S. Eng. who practised in London and Watford and died in 1879. Applicant was left unprovided for, and owing to ill-health unable to do much work. Only income a pension from another charity. Relieved 10 times, £117. Voted £8 in 12 instalments.

Subscriptions may be sent to Dr. Samuel West, honorary treasurer, at 11, Chandos-street, Cavendish-square, London, W.

THE ASSOCIATION OF INFANT WELFARE: A DEPUTATION TO LORD RHONDDA.—A deputation from the Association of Infant Welfare and Maternity Centres has approached the President of the Local Government Board in regard to State help for the adequate feeding of mothers and young children, urging the extension of the present Government grant of 50 per cent. of the approved expenditure of welfare centres to cover the cost of supplying milk to children under school age and nourishment for nursing and expectant mothers in necessitous cases. Dr. Eric Pritchard pointed out the difficulty

for mothers under present circumstances of providing the necessary 1½ pints of milk per day for artificially fed babies, and the still greater difficulty in affording as much milk as was really needed for children from 9 months to 3 years, if they were to grow up sound and strong. He stated that a small quantity of sugar, now difficult to obtain, was vitally necessary for children under 18 months of age. Dr. Flora Shepherd stated that, in her experience, the provision at welfare centres of suitable meals for mothers largely increased the proportion of breast-fed babies. Lord Rhondda, in a sympathetic reply, foreshadowed early legislation to increase the powers of local authorities in the direction indicated.

MANCHESTER and district have contributed £47,000 in aid of the fund for the relief of blinded sailors and soldiers.

DUBLIN UNIVERSITY PARLIAMENTARY ELECTION.—The polling in this election began on Jan. 30th and closed on the afternoon of Feb. 5th. The net number of votes polled was: For Mr. A. W. Samuels, 1487; and for Sir Robert Woods, 679. Sir Robert Woods's supporters are satisfied at the result of the contest, as their candidate had only been before the constituency a few weeks. Sir Robert Woods has declared his intention of presenting himself as a candidate at the first vacancy which may occur in the representation of the University in Parliament.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BRAMWELL, EDWIN, M.B. Edin., F.R.C.P. Lond. and Edin., has been appointed one of the Medical Referees under the Workmen's Compensation Act for the Sheriffdom of Forfar.

CUNNINGTON, C. WILLETT, M.B., B.C. Camb., Acting Physician to Out-patients at Great Northern Central Hospital.

GEORGE, R. J., M.D. Edin., Certifying Surgeon under the Factory and Workshop Acts for the Paignton District of the county of Devon.

JACKSON, J. C., M.R.C.S., L.R.C.P. Lond., D.P.H., Deputy Medical Officer of Health for Hammersmith, *pro tem.*

POOLER, H. W., M.B., B.Ch. Birm., Medical Officer to the Shirland District of the Chesterfield Union.

VAN COLLER, A. S., Senior Medical Student, Glasgow University, Assistant House Surgeon for General Infirmary, Greenock.

WATSON, J. C., M.B. Edin., Certifying Surgeon under the Factory and Workshop Acts for the Lydbrook District of the county of Gloucester.

WILSON, A. C., M.D. Glasg., Medical Officer to the Clay Cross District of Chesterfield Union.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BARNSLEY, BECKETT HOSPITAL AND DISPENSARY.—House Surgeon. Salary £200 per annum, with board, &c.

BATH, EASTERN DISPENSARY.—Resident Medical Officer. Salary £140 per annum, with furnished rooms, &c.

BIRKENHEAD UNION INFIRMARY.—Junior Female Resident Assistant Medical Officer. Salary at rate of £300 per annum, with board, &c.

BOLTON INFIRMARY AND DISPENSARY. Senior House Surgeon, Second House Surgeon, and also Third House Surgeon. Salaries £220, £200, and £180 per annum respectively, with board, &c.

BRISTOL GENERAL HOSPITAL.—House Surgeon for six months. Salary at rate of £175 per annum, with board, &c.

CARDIFF, KING EDWARD VII.'S HOSPITAL.—House Surgeon for six months.

CHARING CROSS HOSPITAL, Agar-street, W.C.—House Physician and House Surgeon. Salary £100 per annum, with board, &c.

DERBYSHIRE ROYAL INFIRMARY, DERBY.—House Physician and Casualty Officer. Also Resident Anæsthetist. Salaries £220 per annum, with board, &c.

DUMFRIES, CRICHTON ROYAL.—Temporary Pathologist and Clinical Pathologist, unmarried. Salary £300 per annum, with board, &c.

EDINBURGH PARISH COUNCIL, CRAIGLOCKHART POORHOUSE AND HOSPITAL.—Assistant Medical Officer. Salary £250 per annum, with board, &c.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £200 per annum, with board, &c.

KENT EDUCATION COMMITTEE.—Temporary School Medical Inspector and Medical Officer of School Clinic. Salary at rate of £350 per annum.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—Senior House Surgeon. Salary £250 to £300 per annum.

MANCHESTER, BAGULEY SANATORIUM FOR TUBERCULOSIS.—First Assistant Medical Officer, unmarried. Salary £300 per annum, with board, &c.

MANCHESTER COUNTY ASYLUM, Prestwich.—Locum Tenens. Salary £7 7*s.* per week, with board, &c.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—Female House Surgeon. Salary £120 per annum, with board, &c.

MANCHESTER ROYAL INFIRMARY.—Resident Medical Officer. Salary £225 per annum, with board, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Junior House Physician. Salary £150 per annum, with board, &c. Also Female Co-examiner to School of Massage.

NEWPORT COUNTY BOROUGH.—Medical Officer for Maternity and Child Welfare Scheme. Salary £350 per annum.

NORTHERN HOSPITAL, Winchmore Hill, N.—Tuberculosis Wards: Resident Temporary Assistant Medical Officer. Salary 7 guineas per week.

NOTTINGHAM AND MIDLAND EYE INFIRMARY.—Female Resident House Surgeon. Salary £120 per annum.

PARISH OF ST. GILES CAMBERWELL, INFIRMARY, Brunswick-square, Camberwell.—Two Locum Tenens Assistant Medical Officers. Salary £7 7*s.* weekly, each with board, &c.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green.—Temporary Assistant Physician to Out-patients.

ROTHERHAM HOSPITAL.—Junior House Surgeon. Salary £150 per annum, with board, &c.

ST. MARK'S HOSPITAL, City-road, E.C.—House Surgeon. Salary as arranged, with board, &c.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £75 per annum, with board, &c.

SALFORD ROYAL HOSPITAL.—House Surgeon and Junior House Surgeon. Salaries at rate of £200 and £150 per annum respectively, with board, &c.

STAFFORDSHIRE EDUCATION COMMITTEE.—Female Assistant School Medical Inspectors. Salaries at rate of £400 per annum.

SUNDERLAND ROYAL INFIRMARY.—Female House Surgeon. Salary £150 per annum, with board, &c.

UNIVERSITY OF LONDON.—External Examiners.

Births, Marriages, and Deaths.

BIRTHS.

ARCHER.—On Jan. 23rd, to Ada Caroline, the wife of Charles W. Archer, F.R.C.S., Temp. Surgeon, R.N.—twin daughters.

FENN.—On Feb. 2nd, at Lancaster-place, Hampstead, N.W., the wife of Captain C. E. Fenn, R.A.M.C., of a daughter.

HUDSON.—On Jan. 29th, at the Florence Nightingale Home, to Major and Mrs. Bernard Hudson, R.A.M.C., of Davos-Platz, Switzerland—twin sons.

JAMES.—On Jan. 29th, at Roseland, Llanon, Aberystwith, the wife of Captain Gwilym James, R.A.M.C., of a daughter.

LANGRISHE.—On Feb. 3rd, at The Park, Beckenham, Kent, the wife of Captain (temporary Lieutenant-Colonel) J. du Plessis Langrishe, R.A.M.C., of a son.

MYER.—On Feb. 6th, at Cambridge-terrace, Hyde Park, the wife of Leonard Myer, F.R.C.S., of a daughter.

PINCHING.—On Feb. 4th, at Framp-ton-on-Severn, Stonehouse, Glos., the wife of W. G. Pinching, M.R.C.S., L.R.C.P., of a son.

POOLEY.—On Feb. 3rd, at Highfields, Chew Magna, Somerset, to K. Priscilla (*née* Bright), wife of Captain John Sandy Pooley, R.A.M.C., S.R.—a son.

PRITCHARD.—On Jan. 29th, at West Side, Wandsworth Common, the wife of Edward J. Pritchard, M.R.C.S., L.R.C.P. Lond.—a son.

SMITH.—On Jan. 27th, at Melville-street, Edinburgh, the wife of Captain A. Nimmo Smith, R.A.M.C., of a son.

MARRIAGES.

COURTENAY—ASHWORTH.—On Feb. 3rd, at St. Paul's Church, Onslow-square, S.W., by the Rev. Preb. Webb-Peploe, assisted by the Rev. A. C. Ashworth, brother of the bride, Ashley Reginald (Lieutenant, A.S.C.), elder son of the Rev. and Mrs. C. C. Courtenay, Rome, Italy, and Edith Kennedy, younger daughter of J. Henry Ashworth, M.D. St. And., M.R.C.P. Edin., of Vigne House, Cliftonville, Kent.

ELTON—MAULE.—On Jan. 30th, at St. Mary's Church, Huntingdon, Henry B. Elton, M.B., to Mary Constance (Molly), younger daughter of Mr. and Mrs. J. Percy Maule, The Views, Huntingdon.

LEWERS—ASHWORTH.—On Feb. 3rd, at St. Paul's Church, Onslow-square, S.W., by the Rev. Preb. Webb-Peploe, assisted by the Rev. A. C. Ashworth, brother of the bride, William Heartley Nicholson, elder son of Arthur H. N. Lewers, M.D. Lond., F.R.C.P., of 15, Southwick-street, W., and Winifred Louise, elder daughter of J. Henry Ashworth, M.D. St. And., M.R.C.P. Edin., of Vigne House, Cliftonville, Kent.

MUIRHEAD—HALL.—By special licence, at St. Andrew's Church, Sharrow, Sheffield, by the Rev. C. Ion Allen, on Jan. 20th, William Martin Muirhead, temporary Captain, R.A.M.C., son of Mr. and Mrs. Hugh Muirhead, Fulwood, Sheffield, to Gladys, young st daughter of the late William E. Hall and of Mrs. Hall, Sharrow, Sheffield.

RAWSON—FURNIVAL.—On Feb. 1st, at Metheringham, Captain P. H. Rawson, R.A.M.C., M.C., S. Staffs, to Mary Elizabeth, second daughter of Mr. R. B. Furnival, The Mead, Handforth, Cheshire.

DEATHS.

BRUCE.—On Feb. 3rd, suddenly, in London, Robert Bruce, J.P., M.R.C.S., of Hillyfield, Milton-on-Sea, Hants, aged 63 years.

HARDEY.—On Jan. 31st, at Spring-bank, Hull, Edward Peirce Hardey, M.R.C.S., L.R.C.P., aged 70 years.

OLIVER.—On Feb. 1st, at his residence, Parkfield-road, Liverpool, John Brown Oliver, M.D., M.R.C.S., L.S.A., in his 82nd year.

PROWSE.—On Feb. 5th, at Saville-place, Clifton, Bristol, William Prowse, M.R.C.S., in his 82nd year.

ROCK.—Lost by the sinking of H.M.S. *Laurentic*, on Jan. 25th, Frank Ernest Rock, M.D. Lond., D.P.H., Surgeon, R.N.

SHILLINGFORD.—On Jan. 31st, Frank Norton Shillingford, M.R.C.S. Eng., Wisteria-road, Lee, S.E., aged 57 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE CONSERVATIVE TREATMENT OF BURNS AND SCALDS.

To the Editor of THE LANCET.

SIR,—Dr. G. J. O'Reilly's communication in your issue of Jan. 27th gives food for reflection, especially in regard to aseptic scalds and burns. The torture endured by the victims, on which he lays emphasis, must undoubtedly add greatly to the shock of the injury and contribute to the delay or prevention of recovery. Perhaps I may be allowed to relate an experience of my own bearing on the subject.

Some years ago, as the result of an accident, about two gallons of boiling water fell on my bare right foot. The rapidly ensuing pain was in the highest degree unbearable, and I instinctively plunged the foot into a washing-basin half full of water in which a breakfast-cupful of bath salt had been dissolved overnight, to which I added a dessert-spoonful of bicarbonate of soda. I immediately felt relief, but I thought it right to send out as soon as possible for carron oil and the usual dressings, including cotton-wool. In about a minute from their application the pain had returned in all intensity. I then had a foot-bath prepared containing common salt and bicarbonate of soda, in about the proportions indicated, at a temperature of 90° F. The effect was as if the foot had been immersed in liquid fire, but as soon as the temperature was reduced to 80° F. I was completely at ease. Meanwhile, unknown to me, the late Mr. John Langton had been summoned. I well remember the puzzled expression his face wore when, armed with morphia and syringe, he entered the room to find me heartily partaking of breakfast and reading the morning paper. He punctured a bulla extending over the dorsal aspect of the foot and toes and subsidiary ones about the ankles; and returned at 11 P.M. similarly provided to find me in bed in perfect comfort. Pressed to define the sensation in my foot, I explained that it had the character of a nettle-sting, but was much less severe. Indeed, it was scarcely noticeable. After an excellent night I resumed the foot-bath, maintaining a temperature of from 70° to 80° F. up to the afternoon of the third day, when I drove out, wearing a slipper, and for two hours visited patients, going up and down several flights of stairs. The result was rapid filling of the bullæ, the appearance of a zone of redness at their margins, and a modern return of pain. I resumed the treatment until the morning of the fifth day, on which I returned to work and went about as usual with impunity. Desquamation went on for six weeks.

Since then I have both carried out and recommended the treatment described with uniform success. The most recent case was that of a scald of the hand from the wrist to the finger-tips. The patient was persuaded in the first instance to carry out the more orthodox treatment and passed the night in great pain. On the following morning the hand was bullous from wrist to finger-tips, of an angry red colour, and the fingers were in shape like large sausages and immovable. The saline bath at 80° F. or a little less was then adopted. The relief of pain was immediate, and by the afternoon the swelling had so far subsided that the fingers were freely movable. A rapid recovery ensued. Both the cases cited were scalds of the second degree.

It is within my memory that an Austrian archduchess set fire to her dress while holding a cigarette behind her. She was fearfully burned over the greater part of her body, and she was immersed in a bath to facilitate removal of portions of her clothing and the cleansing of her wounds. Every time that an attempt was made to remove her to a bed the pains became unbearable, and the unfortunate princess remained immersed until she succumbed to shock on the third day.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 5th, 1917. W. BEZLY THORNE.

EDIBLE SEAWEED.

INTEREST seems to be reviving in many old-fashioned forms of food, promoted, no doubt, by the increased activity of the German submarines. Laver-bread has received popular attention lately. It is a sort of food made from green-laver (*Ulva latissima*), sometimes called "oyster-green" from being frequently attached to oysters. Other names for it are "sea-lettuce" or "marine sauce." It has a broad, flat membranaceous frond of a brilliant green, and throws itself into folds and puckers with the movement of the water. It has been used in Scotland, where it is called the "green sloke," not only for food but as a sort of water-dressing bound round the temples, and is considered efficacious as a remedy for headache, after the fashion of fresh cucumber-peel applied to the forehead. There is another variety called the *Porphyra laciniata*, or the "purple laver," which is said to have a better flavour Hooker, writing in 1833, says:—

> This, under the name of Laver, is much eaten in many places, especially the south of England, pickled with salt and preserved in jars, and when brought to table, served up with lemon juice. According to Lightfoot, the inhabitants of the Western Islands gather it in the month of March and after pounding and macerating it with a little water, eat it with pepper, vinegar and butter. Others stew it with leeks and onions.

Pavy, writing in 1875, said that—

> Dr. Letheby urges the advisability of extending the use of so valuable and abundant a stock of food which already enters largely into the diet of some of the coast inhabitants of Gt. Britain, Ireland, and the Continent. Before being cooked they require to be soaked in water, to remove their saline matter. They are then stewed in water or milk until they become tender and mucilaginous. Sometimes they are pickled and eaten with pepper, vinegar and oil or with lemon juice. The consumption of laver is thought to be useful in scrofulous affections and glandular tumours.

Another edible seaweed which is well known is "Irish moss" or "Carragheen" (*Chondrus crispus*), used in chronic bronchial affections and in diarrhœa, dysentery, and renal disorders. It has also been used for making soup, a kind of blancmange, and size. Some other seaweeds are said to reduce corpulency. The Japanese and Chinese have used edible seaweed for a long time as food in the shape of sweetmeats, and even as biscuits or bread. Many years ago specimens of these were brought to London and put on exhibition. They certainly looked appetising enough. Another food obtained from the edges of the sea is samphire (a corruption of Saint Pierre), which is likewise pickled and eaten with vinegar. The green tubular stalks are sucked or drawn off a central, fibrous, thread-like stem.

HOW TO RATION THE HOUSEHOLD.

THE National Food Reform Association has issued three pamphlets in series, entitled "Facts for Patriots" (3*d*. each), from the office of the association, 178, St. Stephen's House, Westminster. These pamphlets have already helped many to revise and reduce their food expenditure, and it is believed that the changes have been effected with profit rather than prejudice to the health of the households. Dealing with the economical use of meat, fish, meat substitutes, the proper place in the dietary of bread and flour, sugar and sweets, milk, vegetables, fruit, and salads, they supply useful information for the moment. Copies, with recipes, may be obtained, post-free, by forwarding 1*s*. 3*d*. to the honorary secretary.

Supplementary and more scientific information will be found in Professor Bayliss's book on the "Physiology of Food and Economy in Diet," which Messrs. Longmans will shortly publish. It deals with such subjects as the uses of food, the quantity required, digestibility, vegetarianism, and other problems which are of importance not only in war-time but in times of peace. No previous knowledge of physiology is assumed. The same firm have in the press a new edition of "One Hundred and One Practical Non-Flesh Recipes," by Margaret Blatch, late principal of the Eustace Miles School of Cookery. It is hoped that the amateur cook will be able to work from these recipes as easily as the professional.

SWAZILAND.

THE Swaziland Protectorate (called by the natives Kwa Ngwane) lies between the Drakensberg and Lebombo Mountains in British South Africa. The Transvaal Province forms a boundary on the south, west, and north, the eastern boundary being Zululand and the Portuguese province of Mozambique (Delagoa Bay). The country was formerly under the administration of, but not incorporated with, the South African Republic; it is now controlled by the British Government. The total area is 6536 square miles, and the population, according to a census taken in 1911, amounts to 99,959, of whom 1083 are Europeans, the bulk of the remainder being natives—Ama-Swazi Bantus (or Swazis). According to the Blue Book for 1915 the general health of the community during the year was good. There has been no serious epidemic of any kind. As the result of a dry season there was less malaria than usual. There are sporadic cases of enteric each year, but as a rule this disease runs a mild course. There are a few cases of leprosy amongst the native population and these are isolated as far as possible. Births and deaths of natives are not registered. Amongst Europeans the births during the year numbered 42, or approximately 35 per 1,000, and the deaths 12, or approximately 10 per 1000. The only hospital is at Mbabane. To this 83 patients were admitted, of whom 6, including 2 Europeans, died; there were 1920 out-patients. The uneducated native makes but little use of the services of the Government medical officers, which services are provided free in most cases; he prefers to be treated by his own medicine man. In the malarial districts, however, the beneficial effects of quinine, which is distributed free by the Government, are being appreciated by the natives.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY.—Papers:—Dr. J. H. Mummery: On the Structure and Development of the Tubular Enamel of the Sparidæ and Labridæ (communicated by Prof. J. Symington).—Miss H. Chick and Miss E. M. M. Hume: The Distribution in Wheat, Rice, and Maize Grains of the Substance, the Deficiency of which in a Diet causes Polyneuritis in Birds and Beri-beri in Man (communicated by Dr. C. J. Martin).—Miss H. Chick and Miss E. M. M. Hume: The Effect of Exposure to Temperature at or above 100° C. upon the Substance (Vitamine) whose Deficiency in a Diet causes Polyneuritis in Birds and Beri beri in Man (communicated by Dr. C. J. Martin).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Feb. 13th.

PATHOLOGY (Hon. Secretaries—Gordon W. Goodhart, C. Price-Jones): at 5 P.M.

Papers:

Major F. W. Mott, R.A.M.C., F.R.S.: (1) Changes in the Central Nervous System in Cases of Hypothyroidism; (2) Changes in the Central Nervous System in Cases of Shell Shock and Gas Poisoning.

Dr. Drinkwater: An Anatomical Abnormality inherited from the Fifteenth Century.

Thursday, Feb 15th.

DERMATOLOGY (Hon. Secretaries—J. E. R. McDonagh, Henry MacCormac): at 5 P.M.

Cases, &c. (at 4.30 P.M.).

Dr. Graham Little: A Case of "Erythème Annulaire Centrifuge" (Darier).

Dr. J. M. H. MacLeod (for Dr. Allworthy): Photographs of a Form of Occupation Dermatitis occurring in the Flax-spinning Mills of Belfast and known as "Doffer's" Eruption.

Friday, Feb. 16th.

OTOLOGY (Hon. Secretaries—E. D. D. Davis, Somerville Hastings): at 8.15 P.M.

Special Discussion:

On "War Injuries and Neuroses of Otological Interest."

To be opened by Mr. H. Jr Marriage, F.R.C.S., President of the Section.

NEUROLOGY.—Members of the Section of Neurology are specially invited to attend the meeting of the above Section.

ELECTRO-THERAPEUTICS (Hon. Secretaries—E. P. Cumberbatch, Robert Knox): at 8.30 P.M.

Paper:

Dr. Martin Berry: Trauma in the Etiology of Arthritis.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—8.30 P.M.. Paper:—Surg.-Gen. H. D. Rolleston, R.N., C.B.: Naval Medicine in the Great War.

HUNTERIAN SOCIETY, at the Royal Society of Medicine, 1, Wimpole-street, W.

WEDNESDAY.—6.30 P.M., Council Meeting. 9 P.M., Hunterian Society Oration:—Dr. Langdon Brown: The Hunterian Tradition in Cardiac Research.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY.—4.30 P.M., Cantor Lecture:—Prof. A. B. Pite: Town Planning and Civic Architecture. (Lecture III.)

WEDNESDAY.—4.30 P.M., Mr. L. Chubb: Highways and Footpaths.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND, 11, Chandos street, Cavendish-square, W.

THURSDAY.—3 P.M., General Meeting. Paper:—Dr R. Armstrong Jones: Dreams and their Interpretation, with Reference to Freudism.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—5.30 P.M., Paper:—Miss H. Chick and Miss E. M. M. Hume: The Distribution among Foodstuffs (especially those suitable for the Rationing of Armies) of the Substances required for the Prevention of (a) Beri-beri and (b) Scurvy.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

MONDAY.—5 P.M., Hunterian Lecture:—Prof. J. Hutchinson: On Dupuytren's Contraction. Dupuytren's Life and Surgical Works.

WEDNESDAY.—5 P.M., Hunterian Oration:—Sir George H. Makins, K.C.M.G., C.B.: Hunter's Influence on Military Surgery.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynecological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

ROYAL INSTITUTE OF PUBLIC HEALTH, Lecture Hall of the Institute, 37, Russell-square, W.C.

Course of Lectures and Discussions on Public Health Problems under War and After-war Conditions:—

WEDNESDAY.—4 P.M., Lecture V.:—Lieut.-Col. S. A. M. Copeman, M.D.: The Prevention and Arrest of Infectious Disease in War Time. Lieut.-Col. D Harvey, R.A.M.C., has promised to take part in the discussion.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.

TUESDAY.—3 P.M., Prof. C. S. Sherrington: Pain and its Nervous Basis. (Lecture V.)

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification.*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

Offices: 423, STRAND, LONDON, W.C.

MANAGER'S NOTICES.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1916 will be ready shortly. Bound in cloth, gilt lettered, price 16*s.*, carriage extra.

Cases for binding the half-year's numbers (inland edition) are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 4*d.*

To be obtained on application to the Manager, accompanied by remittance.

ALTERATION IN THE PRICE OF "THE LANCET."

INCREASED war expenses and cost of production necessitate an increase of the price of THE LANCET. Commencing with the new year, the price was raised to 8*d.* The rates of subscription remain as revised in October.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

Subscribers abroad are particularly requested to note the rates of subscriptions given on page 4.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the rates shown, whatever be the weight of any of the copies so supplied.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 7th, 1917.

Date.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Tem.	Wet Bulb.	Dry Bulb.	Remarks.
Feb. 1	...	45	34	32	33	34	Overcast
,, 2	...	30	30	28	29	29	Overcast
,, 3	...	40	37	27	28	28	Overcast
,, 4	...	42	37	24	24	24	Fine
,, 5	0·19	50	34	24	24	24	Overcast
,, 6	...	59	36	24	27	27	Cloudy
,, 7	...	50	38	22	24	24	Cloudy

Other information which we have been accustomed to give in these "Readings" is withheld for the period of the war.

The following journals, magazines, &c., have been received:—Practitioner, La Clinique Ophtalmologique, Indian Medical Gazette, British Dental Journal, Edinburgh Medical Journal, British Journal of Dental Sciences, Transactions of the Society of Tropical Medicine and Hygiene, St. Paul Medical Journal, Annali d'Igiene, Journal of Nervous and Mental Disease, Archives de Médecine et de Pharmacie Militaires.

BOOKS, ETC., RECEIVED.

CHURCHILL, J. AND A., London.
Short Practice of Gynæcology for Medical Students. By H. Jellett, M.D. Dub., F.R.C.P.I. 15s. net.

WRIGHT, JOHN, Bristol.
Ligations and Amputations. By Professor A. Broca (Paris). Translated by Ernest Ward, M.A., M.D., F.R.C.S. 8s. 6d. net.

LIPPINCOTT CO., J. B., London, Philadelphia, and Montreal.
Syphilis and the Nervous System. By Dr. Max Nonne. Authorised Translation from Second German edition. By C. R. Ball, B.A., M.D. Second American edition, revised. 18s. net.
Pharmacology and Therapeutics. By Horatio C. Wood, jun., M.D. Second edition. 18s net.
Applied Immunology. By B. A. Thomas, A.M., M.D., and R. H. Ivy, M.D., D.D.S. Second edition, revised. 16s. net.
Applied Anatomy. By Gwilym G. Davis. Fourth edition. 24s. net.

Communications, Letters, &c., have been received from—

A.—Prof. F. W. Andrewes, Lond.; Messrs. Arnold and Sons, Lond.; Association of Infant Welfare and Maternity Centres, Lond.; Australian Red Cross, Society, Lond.; Aymard Patent Milk Sterilizer Co. Ipswich; American Public Health Association, Boston; Messrs. Adlard and Son, and West and Newman, Lond.

B.—Mr. W. Bryce, Edinburgh; Messrs. Burroughs Wellcome and Co., Lond.; Baillie's Institution, Glasgow, Librarian of; Messrs. Butterworth and Co., Lond.; British Purchasers of the Sanatogen Co., Lond; British Red Cross Society, Lond.; Messrs. P. C. Burton and Co., Lond; Birkenhead Guardians, Clerk to the; Mr. W. H. Battle, Lond.; Dr. I. Bastow, Bournemouth; Messrs. W. H. Bailey and Son, Lond.; Mr. E. Bougault, Paris; Dr. J. I. B. Burkart, Lond.; Col. A. J. Blackham, D.S.O.; Dr. J. S. Boothroyd, Lond.; Capt. H. Burrows, R.A.M.C.(T.F.). Messrs. Bale Sons, and Danielssons, Lond; Dr. C. R. Box, Lond.; Mr. F. M. Bussy, Lond.; Mr. F. J. Burdon, Lond.

C.—Mr. E. M. Corner, Lond.; Messrs. Crossley and Co., Lond.; Miss M. M. Clifford, Cambridge Philosophical Society, Librarian of; Lieut.-Col. R. W. Clements, R.A.M.C.; Messrs. G. W. Carnrick Co., New York City; Major W. S. Crockwait, R.A.M.C.; Messrs. Carnrick and Co., Lond.; Dr. J. S. Castellano, Puerto de la Luz; Dr. D. F. Curjel, Agra; Mr. E. W. Cox, Lond.; Messrs. J. and A. Churchill, Lond.; Messrs. R. Cook and Co., Lond.; Mrs. Colt, Sutton; Crichton Royal, Dumfries, Physician-Supt. of County Asylum, Prestwich, Medical Supt. of; Camberwell Guardians, Clerk to the; Dr. H. Crouse, El Paso, U.S.A.

D.—Dr. J. Davison, Bournemouth; Prof. H. R. Dean, Manchester; Derbyshire Royal Infirmary, Derby, Sec. of; Dr. H. M. Dowler, Mussoorie; Dr. D. Drummond, Newcastle-on-Tyne; Lieut.-Col. F. W. H. Davie-Harris, R.A.M.C.; Mr. J. R. Dingley, Winchester.

E.—Capt. J. Ewing, R.A.M.C.; Dr. N. Erian, Port Said; E. P. Y.; Lieut.-Col. R. H. Elliot, I.M.S. (retd.); Dr. J. E. Eddison, Leeds; Mr. A. H. Edwards, Lond.; Education Office, Coventry, Sec.

F.—Dr. H. M. Fletcher, Lond.; Col. A. Fullerton, Belfast; Capt. C. Ferrier-Walters, R.A.M.C.(T.); Dr. R. W. Freyer, Cleggan; Dr. R. H. Fox, Lond.; Messrs. Fletcher, Fletcher, and Co., Lond.

G.—Dr. J. H. Graves, Waco, Texas; Dr. A. S. Griffith, Cambridge; Glasgow Corporation Public Health Laboratory, Bacteriologist of; Dr. R. Garas.

H.—Dr. D. F. Harland Lond.; Dr. F. Hernaman-Johnson, Lond.; Dr. G. L. Hill, Birmingham; Dr. F. de R. W. Hayes, Leeds; Messrs. C. J. Hewlett and Son, Lond.; Prof. W. D. Halliburton, Lond.; Messrs. Howards and Sons, Ilford; Capt. G. F. Hughes, R.A.M.C.; Prof. J. Hutchinson, Lond.; Mr. R. Harris, Lond. Mr. R. Hayes, Lond.; Hulme Dispensary, Manchester, Hon. Sec. of; Messrs. Hough, Hoseason and Co., Manchester.

I.—Incorporated Society of Trained Masseuses, Lond.; Istituto Sieroterapico, Milanese, Milano, Librarian of; Mr. W. Inman, St. Helens.

J.—Mr. W. H. Jessop, Lond.; Capt. A. R. Jordan, R.A.M.C.(T.C.), Messrs. Jones, Yarrell, and Co., Lond.

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M.—Dr. H. H. Moyle, Henstridge; Medico-Psychological Association of Great Britain and Ireland, Lond.; Dr. G. D. McRae, Ayr; Mr. J. F. Mackenzie, Edinburgh; Messageries Hachette, Lond.; Metropolitan Asylums Board, Clerk to the; Manchester (U.S.A.), City Library, Librarian of; Dr. F. R. H. Meyrick, Brighton; Messrs. H. A. Murton, Newcastle-on-Tyne; Messrs. Micajah and Co., Warren, U.S.A.; Messrs. Mabie, Todd, and Co., Lond.; Messrs. May and Baker, Lond.; Messrs. J. Menzies and Co., Glasgow; Manchester Corporation, Medical Officer of Health of; Messrs. Matthew Bros., Lond; Messrs. J. Menzies and Co., Edinburgh; Dr. R. Morton, Lond.; Dr. A. A. Macgeith, Southampton; Dr. Dan McKenzie, Lond.; Major D. G. Marshall, I.M.S.; Mr. H. E. Maberley, Coulston; Mr. J. Y. W. MacAlister, Lond.; Manchester Royal Infirmary, General Sec. of; Prof. E. J. McWeeney, Dublin.

N.—National Food Reform Association, Lond., Hon. Sec. of; Newport County Borough, Town Clerk of, Sir George Newman, Lond.; Dr. L. Nicholls, Colombo; National Committee for Relief in Belgium, Lond., Hon. Sec. of; Mr. A. Naismith, Glasgow.

O.—Miss K. A. Ormerod, Ensay, Victoria; Ottawa Biological Laboratory, "Pathologists of; Office International d'Hygiène publique, Paris.

P.—Capt. J. E. Pearce, R.A.M.C.; Messrs. Parker and Son, Oxford; Major W. Pearson, R.A.M.C.; Lieut. D. S. Pracy, R.A.M.C.; Peterborough Infirmary, Sec. of; Patent Office Library, Lond., Librarian of.

R.—Lieut. W. Roche, R.A.M.C.; Royal Sanitary Institute, Lond.; Messrs. Reuters, Lond.; Royal Institution of Great Britain, Lond., Sec. of; Reading Public Libraries, Librarian of; Mr. R. W. H. Row, Lond.; Mr. T. G. Read, Blackgang; Royal College of Surgeons of England, Lond., President and Council of; Royal Institute of Public Health, Lond., Sec. of; Messrs. Robertson and Scott, Edinburgh.

S.—Dr. D. M. Smith, Ventnor; Messrs. Seabrook Bros., Lond.; Mr. A. Stenhouse, Glasgow; Dr. D. N. Seth-Smith, Bildeston; Lieut. A. Sunderland, R.A.M.C.; Messrs. Smith, Elder, and Co., Lond.; Capt. A. Stokes, R.A.M.C.; Sir Edward A. Schäfer, Edinburgh; Surg.-Probationer J. Shaw, R.N.V.R.; Sunderland Corporation, Health Dept., St. John Ambulance Association, Lond., Director of Stores of, Mr. C. A. Schunck, Ewelme; Mr. H. S. Salt, Lond.; Society of Tropical Medicine and Hygiene Lond., Dr. J. R. Sandilands Lond; Dr. W. C. Sullivan, Lond.; Lieut. D. W. Smith, R.A.M.C.

T.—Messrs. C. Tuckey and Co.; Lond; Mr. J. Thin, Edinburgh; Dr. F. Taylor, Lond.; Dr. W. Bezly Thorne.

U.—University College, Cork, Librarian of.

V.—Messrs. J. W. Vickers and Co., Lond.; Vancouver Medical Association, B.C.; Victoria (B.C.) Provincial Board of Health, Sec. of.

W.—Mr. J. M. Wigley, Lancaster; Mr. E. S. Weymouth, Lond.; Capt. N. W. Walmsley, R.A.M.C.; Watford Manufacturing Co., Watford; Capt. C. F. Walters, R.A.M.C.(T.); Mr. C. E. West, Lond., West Kent General Hospital, Maidstone, Sec. of; Mr. A. M. Williamson, Edinburgh; Col. C. Wallace, C.M.G., A.M.S.; War Refugees Committee, Lond.; Dr. S. A. K. Wilson, Lond.; West London Hospital Post-Graduate College, Dr. J. Walker, Lond.; Staff-Surg. H. Wood; Welsh Metropolitan War Hospital, Whitchurch, Clerk of; Mr. G. M. White, Lond.

Letters, each with enclosure, are also acknowledged from—

A.—Lieut.-Col. H. C. L. Arnaud, Dr. C. Achner, Lond.; Messrs. Allen and Hanburys, Lond.; American Drug Supply Co., Lond.; Dr. E. Allen, Arnold; Allahabad Bank, Meerut, Manager of.

B.—Mr. W. F. Brook, Swansea; British Drug Houses Co., Lond.; Bishopstone House, Bedford; Capt. C. A. Baragar, C.A.M.C., Mr. W. G. Baker, Leicester; Bologna Medical Society, Sec. of; Messrs. J. Beal and Son, Brighton; Bury Corporation, Acct. to the; Blackburn Corporation, Treas. to the; Belfast Corporation, Chamberlain to the.

C.—Mr. H. B. Corry, East Liss; Messrs. J. and A. Carter, Lond.; Dr. J. F. Corson, Akuse; Messrs. Cutting and Underwood, Lond.; Croydon Corporation, Acct. to the; Capt. O. Carlyle, R.A.M.C. Corbett Estate Office, Droitwich; County of Lanark, Hamilton, Accnt. to the.

D.—Dr. J. Dickson, Huddersfield; Dr. C. C. Datta, Amta; Dr. M. Dempsey, Dublin; Mr. H. M. Davies, Lond.; Messrs. Douglas and Miller, Edinburgh.

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